PATENT
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In re Application of:	Kirk Hogan		
Serial No.:	09/613,887	Group No.:	1655
Filed:	July 11, 2000	Examiner:	J.E. Goldberg
Entitled:	**Methods and Compositions for Perioperative Genomic Profiling**		

SECOND DECLARATION OF KIRK HOGAN, M.D. UNDER 37 C.F.R. §1.132

Assistant Commissioner for Patents
Washington, D.C. 20231

CERTIFICATE OF MAILING UNDER 37 C.F.R. § 1.8(a)(1)(i)(A)

I hereby certify that this correspondence (along with any referred to as being attached or enclosed) is, on the date shown below, being deposited with the U.S. Postal Service with sufficient postage as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231.

Dated: July 8, 2002 By: Susan M. McClintock
Susan M. McClintock

Madam:

1. I, Kirk Hogan, am the inventor of the subject matter embodied in the above-identified patent application.

2. I am not aware of any case where physicians have carried our genomic profiling in the perioperative period using a heterogenous assay (other than my own work).

3. Even to this day, to my knowledge, the ordinary artisan does not clearly recognize the benefit of testing an individual for genetic markers prior to surgery in order to generate a perioperative genomic profile.

4. This is evidenced, for example, in the 2002 manuscript "Practice Advisory for Preanesthesia Evaluation: A Report by the American Society of Anesthesiologists Task Force on Preanesthesia Evaluation."

5. To prepare the Practice Advisory the 12 member Task Force used a six step process. First, they reached consensus on the criteria for evidence of effectiveness of preanesthesia evaluation. Second, original published research studies relevant to these issues were reviewed. Third, consultants who had expertise or interest in preanesthesia evaluation, and who had practiced or worked in various settings (e.g., academic and private practice) were asked to (1) participate in opinion surveys on the effectiveness of various preanesthesia evaluation strategies, and (2) review and comment on the draft reports of the Task Force. Fourth, opinions about various elements of this Practice Advisory were solicited from a random sample of active members of ASA. Fifth, the Task Force held several open forums at major national anesthesia meetings to solicit input on key concepts of this Advisory. Sixth, all available information was used to build a consensus within the Task Force on the Advisory.

6. The Task Force concludes "*Routine preoperative tests* (*i.e.*, tests intended to discover a disease or disorder in an asymptomatic patient) do not make an important contribution to the process of perioperative assessment and management of the patient by the anesthesiologist." (emphasis in original)

7. The Task Force Practice Advisory for Preanesthesia Evaluation does not teach that perioperative genetic testing should be carried out.

8. The Task Force Practice Advisory for Preanesthesia Evaluation does not provide guidelines for selecting markers useful for perioperative genetic testing.

9. The Task Force Practice Advisory for Preanesthesia Evaluation does not advocate, consider or even mention genetic testing, use of genetic markers, or generation of genomic profiles in the perioperative interval.

10. The Task Force Practice Advisory for Preanesthesia Evaluation demonstrates that both experts and artisans of ordinary skill in the art do not believe, or clearly recognize, that perioperative genetic testing should be carried out.

11. The ordinary artisan did not clearly recognize the benefit of testing an individual prior to surgery and subjection to anesthesia for known genetic markers associated with conditions triggered by anesthesia or surgery at the time the invention was made.

The undersigned declares further that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be

true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under §1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing therefrom.

Dated: 7/8/02 Signed: K Hogan

Kirk Hogan

SPECIAL ARTICLE

Anesthesiology 2002; 96:485–96

Practice Advisory for Preanesthesia Evaluation

A Report by the American Society of Anesthesiologists Task Force on Preanesthesia Evaluation

PRACTICE advisories are systematically developed reports that are intended to assist decision-making in areas of patient care where scientific evidence is insufficient to develop an evidence-based model. Practice advisories provide a synthesis of opinion from experts, open forums, and other public sources. Practice advisories report the current state of scientific literature, but are not supported by literature to the same degree as standards or guidelines due to the lack of sufficient numbers of adequately controlled studies.

Advisories are not intended as guidelines, standards, or absolute requirements. The use of practice advisories cannot guarantee any specific outcome. They may be adopted, modified, or rejected according to clinical needs and constraints. Practice advisories are subject to periodic revision as warranted by the evolution of medical knowledge, technology, and practice.

Definition of Preanesthesia Evaluation

The literature does not provide a standard definition for preanesthesia evaluation. For this Practice Advisory, the preanesthesia evaluation is defined as the process of clinical assessment that precedes the delivery of anesthesia care for surgery and for nonsurgical procedures. The preanesthesia evaluation is the responsibility of the anesthesiologist.

Preanesthesia evaluation consists of the consideration of information from multiple sources that may include the patient's medical records, interview, physical examination, and findings from medical tests and evaluations. As part of the preanesthesia evaluation process, the anesthesiologist may choose to consult with other healthcare professionals to obtain information or services that are relevant to perioperative anesthetic care. Preoperative tests, as a component of the preanesthesia evaluation, may be indicated for various purposes, including but not limited to (1) discovery or identification of a disease or disorder that may affect perioperative anesthetic care, (2) verification or assessment of an already known disease, disorder, medical or alternative therapy that may affect perioperative anesthetic care, and (3) formulation of specific plans and alternatives for perioperative anesthetic care. For this Advisory, *perioperative* refers to the care surrounding operations and procedures.

The assessments made in the process of a preanesthesia evaluation may be used to educate the patient, organize resources for perioperative care, and formulate plans for intraoperative care, postoperative recovery, and perioperative pain management.

Additional material related to this article can be found on the ANESTHESIOLOGY Web site. Go to the following address, click on Enhancements Index, and then scroll down to find the appropriate article and link. http://www.anesthesiology.org

Purposes of the Advisory for Preanesthesia Evaluation

The purposes of this Advisory are to (1) assess the currently available evidence pertaining to the healthcare benefits of preanesthesia evaluation, (2) offer a reference framework for the conduct of preanesthesia evaluation by anesthesiologists, and (3) stimulate research strategies that can assess the healthcare benefits of a preanesthesia evaluation.

Focus

A preanesthesia evaluation is considered a basic element of anesthesia care. Therefore, the focus of this Advisory is the assessment of evidence pertaining to the content and timing of a preanesthesia evaluation. The interactions between the preanesthesia evaluation, preoperative testing, and perioperative care are beyond the scope and mandate of the Task Force. Informed consent, often undertaken at the same time as the preanesthesia evaluation, is also beyond the scope of this Advisory.

Developed by the Task Force on Preanesthesia Evaluation: L. Reuven Pasternak, M.D. (Chair), Baltimore, Maryland; James F. Arens, M.D., Houston, Texas; Robert A. Caplan, M.D., Seattle, Washington; Richard T. Connis, Ph.D., Woodinville, Washington; Lee A. Fleisher, M.D., Baltimore, Maryland; Richard Flowerdew, M.B., Portland, Maine; Barbara S. Gold, M.D., Minneapolis, Minnesota; James F. Mayhew, M.D., League City, Texas; David G. Nickinovich, Ph.D., Bellevue, Washington; Linda Jo Rice, M.D., St. Petersburg, Florida; Michael F. Roizen, M.D., Chicago, Illinois; Rebecca S. Twersky, M.D., Brooklyn, New York

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The accompanying Web site enhancement is a bibliography.

Address reprint requests to American Society of Anesthesiologists, 520 North Northwest Highway, Park Ridge, Illinois 60068-2573.

Application

This Advisory is intended for use by anesthesiologists and those who provide care under the direction of an anesthesiologist. The Advisory applies to patients of all ages who are scheduled to receive general anesthesia, regional anesthesia, moderate or deep sedation for elective surgical and nonsurgical procedures. The Advisory does not address the selection of anesthetic technique nor the preanesthesia evaluation of patients requiring urgent or emergency surgery or anesthetic management provided on an urgent basis in other locations (*e.g.*, emergency rooms).

Criteria for Anesthesia Intervention, Testing, and Consultation

Any evaluations, tests, and consultations required for a patient are done with the reasonable expectation that such activities will result in benefits that exceed the potential adverse effects. Potential benefits may include a change in the content or timing of anesthetic management or perioperative resource utilization that may improve the safety and effectiveness of anesthetic processes involved with perioperative care. Potential adverse effects may include interventions that result in injury, discomfort, inconvenience, delays, or costs that are not commensurate with the anticipated benefits.

Task Force Members and Consultants

The American Society of Anesthesiologists (ASA) appointed a task force of 12 members to (1) review published evidence; (2) obtain expert and public consensus opinion; and (3) create a consensus-based assessment of currently available scientific literature and opinion. The ASA Task Force members consisted of anesthesiologists in both private and academic practices from various geographic areas of the United States, and methodologists from the ASA Committee on Practice Parameters.

The Task Force used a six-step process. First, they reached consensus on the criteria for evidence of effectiveness of preanesthesia evaluation. Second, original published research studies relevant to these issues were reviewed. Third, consultants who had expertise or interest in preanesthesia evaluation, and who practiced or worked in various settings (*e.g.*, academic and private practice) were asked to (1) participate in opinion surveys on the effectiveness of various preanesthesia evaluation strategies, and (2) review and comment on draft reports of the Task Force. Fourth, opinions about various elements of this Practice Advisory were solicited from a random sample of active members of the ASA. Fifth, the Task Force held several open forums at major national anesthesia meetings to solicit input on the key concepts of this Advisory. Sixth, all available information was used to build consensus within the Task Force on the Advisory.

Availability and Strength of Evidence

Practice advisories are developed by a systematic, consensus-based process. In contrast to evidence-based guidelines, practice advisories lack the support of a sufficient number of adequately controlled scientific studies to permit aggregate analyses of data with rigorous statistical techniques such as meta-analysis. Nonetheless, literature-based evidence for practice advisories is available from limited controlled trials, case reports, descriptive studies, and by the assessment of the strengths and weaknesses of published studies. This literature often permits the identification of recurring patterns of clinical practice. Opinion surveys often reveal similar patterns. The advisory statements contained in a practice advisory represent a consensus-based distillation of the clearest patterns of agreement or disagreement.

Advisory Statements

Preanesthesia History and Physical Examination

Impact. A preanesthesia history and physical examination precedes the ordering, requiring, or performance of specific preanesthesia tests, and consists of (1) evaluation of pertinent medical records, (2) patient interview(s), and (3) physical examination. No controlled trials of the clinical impact of performing a preanesthesia medical records review or physical examination were found. Several studies reported specific perioperative outcomes (*e.g.*, cardiac, respiratory, renal, hemorrhagic) occurring in patients with specific preexisting conditions (*e.g.*, hypertension, previous myocardial infarction, smoking, pulmonary disease, and age).[1-63] Such conditions often are noted in a patient's medical record. Additional studies were examined that reported preexisting conditions (*e.g.*, airway abnormalities, cardiopulmonary disorders) detected during a preanesthesia examination or interview.[6,28,44,47,49,59,64-91] Five of these studies resulted in changes in resource management.[49,64,74,82,84] These studies were not controlled trials and were not considered sufficiently rigorous to provide unequivocal evidence of the value of performing a preanesthetic medical records review or physical examination.

Advisory

The Task Force believes that the assessment of anesthetic risks associated with the patient's medical condi-

Table 1. Timing of the Initial Assessment of Pertinent Medical Records–Survey Opinions

Surgical Invasiveness	High		Medium		Low	
	Consultants (N = 72)	ASA Members (N = 234)	Consultants (N = 72)	ASA Members (N = 231)	Consultants (N = 72)	ASA Members (N = 233)
Prior to the day of surgery	89%	75%	58%	33%	17%	11%
On or before the day of surgery	11%	24%	39%	61%	69%	59%
Only on the day of surgery	0%	1%	3%	6%	14%	30%

ASA = American Society of Anesthesiologists.

tions, therapies, alternative treatments, surgical and other procedures, and of options for anesthetic techniques is an essential component of basic anesthetic practice. Benefits may include, but are not limited to, the safety of perioperative care, optimal resource utilization, improved outcomes, and patient satisfaction.

Timing. The activities encompassed by a preanesthesia history and physical examination occur over a variable period of time. The timing of an initial preanesthesia evaluation is guided by such factors as patient demographics, clinical conditions, type and invasiveness of procedure, and the nature of the healthcare system. Three options that practices utilize for the timing of an initial preanesthesia evaluation are (1) always prior to the day of surgery, (2) either on or before the day of surgery, and (3) only on the day of surgery.

Although no controlled trials addressing the timing of a preanesthesia evaluation were found, survey opinions from expert consultants and a random sample of ASA members were obtained to examine potential clinical influences (*i.e.*, patient severity of disease and surgical invasiveness) on timing decisions. Consultant and ASA member opinions regarding the timing of an initial assessment of pertinent medical records for high, medium, and low levels of surgical invasiveness, independent of medical condition, are reported in table 1. The majority of consultants and ASA members agree that, for high surgical invasiveness, the initial assessment of pertinent medical records should be done prior to the day of surgery by anesthesia staff. For medium surgical invasiveness, the majority of consultants indicate that the initial assessment of pertinent medical records should be done prior to the day of surgery by anesthesia staff, although the majority of ASA members indicate that the initial assessment may be done on or before the day of surgery. For low surgical invasiveness, the majority of consultants and ASA members agree that the initial assessment may be done on or before the day of surgery.

Consultant and ASA membership opinions regarding the timing of an initial preanesthesia interview and physical examination for high and low severities of disease are reported in table 2. The majority of consultants and ASA members agree that, for patients with high severity of disease, it is preferable that the interview and physical examination be done before the day of surgery by anesthesia staff. For low severity of disease and high surgical invasiveness, consultants and ASA members agree that it is preferable that the interview and physical examination be done prior to the day of surgery. For patients with low severity of disease and medium or low surgical invasiveness, consultants and ASA members agree that the interview and physical examination may be done on or before the day of surgery.

A majority of consultants and the ASA membership, respectively, agree that, ***at a minimum***, a preanesthesia physical examination should include (1) an airway exam

Table 2. Timing of the Preanesthetic Interview and Physical Examination–Survey Opinions

High Severity of Disease	Surgical Invasiveness					
	High		Medium		Low	
	Consultants (N = 72)	ASA Members (N = 232)	Consultants (N = 72)	ASA Members (N = 232)	Consultants (N = 72)	ASA Members (N = 232)
Prior to the day of surgery	96%	89%	94%	69%	71%	53%
On or before the day of surgery	4%	9%	4%	28%	24%	32%
Only on the day of surgery	0%	2%	1%	3%	5%	15%
Low Severity of Disease	**Surgical Invasiveness**					
	High		Medium		Low	
	Consultants (N = 72)	ASA Members (N = 229)	Consultants (N = 72)	ASA Members (N = 229)	Consultants (N = 72)	ASA Members (N = 229)
Prior to the day of surgery	72%	53%	29%	21%	13%	25%
On or before the day of surgery	11%	20%	49%	46%	39%	34%
Only on the day of surgery	15%	11%	21%	34%	47%	56%

ASA = American Society of Anesthesiologists.

(100%, 100%), (2) a pulmonary examination to include auscultation of the lungs (88%, 85%), and (3) a cardiovascular examination (81%, 82%).

Advisory

The Task Force consensus is that an assessment of readily accessible, pertinent medical records with consultations, when appropriate, should be performed as part of the preanesthesia evaluation prior to the day of surgery for procedures with high surgical invasiveness. For procedures with low surgical invasiveness, the review and assessment of medical records may be done on or before the day of surgery by anesthesia staff. The information obtained may include, but should not be limited to (1) a description of current diagnoses, (2) treatments, including medications and alternative therapies used, and (3) determination of the patient's medical condition(s). Public commentary at open forums and from the Internet corroborates the Task Force consensus.

The Task Force consensus is that an initial record review, patient interview, and physical examination should be performed prior to the day of surgery for patients with high severity of disease. For patients with low severity of disease and undergoing procedures with high surgical invasiveness, the interview and physical exam should also be performed prior to the day of surgery. For patients with low severity of disease undergoing procedures with medium or low surgical invasiveness, the initial interview and physical exam may be performed on or before the day of surgery.

At a minimum, a focused preanesthesia physical examination should include an assessment of the airway, lungs, and heart, with documentation of vital signs. Public commentary at open forums and from the Internet corroborate the Task Force opinions.

The Task Force cautions that timing of preanesthesia assessments may not be practical with the current limitation of resources provided by a specific healthcare system or practice environment. The Task Force believes it is the obligation of the healthcare system to, at a minimum, provide pertinent information to the anesthesiologist for the appropriate assessment of the severity of the medical condition of the patient and invasiveness of the proposed surgical procedure well in advance of the anticipated day of the procedure for all elective patients.

Selection and Timing of Preoperative Tests

Literature regarding controlled trials and test findings regarding the incidence or frequency of commonly used preoperative tests are described below. For purposes of this Advisory, a *routine* test is defined as a test ordered in the absence of a specific clinical indication or purpose. Global designations such as "preop status" or "surgical screening" are not considered as specific clinical indications or purposes. An *indicated* test is defined as a test that is ordered for a specific clinical indication or purpose. For example, assessment of warfarin therapy effects would be considered an indication for specific coagulation studies.

Electrocardiogram. Routine electrocardiographic findings were reported as abnormal in 7.0–42.7% of cases (N = 12 studies)[92–103] and led to changes in clinical management in 9.1% of the cases found to be abnormal (N = 1 study).[100] Preoperative electrocardiograms that were ordered as indicated tests resulted in reports of abnormal findings in 4.8–78.8% of cases (N = 17 studies)[49,51,82,100,104–116] and led to changes in clinical management in 2.0–20.0% of the cases found to be abnormal (N = 6 studies).[49,82,100,104,111,112] One observational study with investigator and practitioner blinding found that preoperative electrocardiographic ischemic episodes were associated with intra- and postoperative myocardial infarction for older patients with severe coronary artery disease scheduled for elective coronary artery bypass grafting (CABG).[110] One observational study reported a 10% or greater incidence of coronary events during the subsequent 10 yr for men over 60 without specific clinical indicators and for women over 65 without specific clinical indicators. The incidence increased to 25% in the decade after such patients' seventy-fifth birthday.[107]

Other Cardiac Evaluation. No studies were found that examined outcomes from routine preoperative cardiac evaluations of angiography, echocardiography, or stress tests. For patients with indicated cardiac evaluations, abnormal findings were found with angiography: 22.5–47.0% of cases (N = 4 studies)[117–120]; echocardiography: 7.5%-50.0% of cases (N = 5 studies)[121–125]; stress or exercise tests; 15.0–71.0% of cases (N = 3 studies).[105,126,127] Changes in clinical management were not uniformly reported.

Chest X-ray. Routine chest x-ray findings were reported as abnormal in 2.5–60.1% of cases (N = 20 studies)[96,98,100,102,128–142] and led to changes in clinical management in 0–51% of the cases found to be abnormal (N = 9 studies).[100,102,128,129,136,139–142] For patients with indicated preoperative chest x-rays, abnormal findings were reported in 7.7–65.4% of cases (N = 18 studies)[30,82,92,100,106,112,128,137,143–152] and led to changes in clinical management in 0.5–74.3% of the cases found to be abnormal (N = 9 studies).[82,100,112,128,143,145–147,152] Two nonrandomized studies compared asymptomatic patients receiving chest x-rays *versus* asymptomatic patients not receiving chest x-rays and found no differences in delays or cancellations of surgery.[141,142] However, the studies found that an abnormal preoperative chest x-ray finding altered care in 8.6% and 9.9% of the cases found to be abnormal.

Pulmonary Evaluation (*i.e.*, Pulmonary Function Tests, Spirometry). Studies examining routine pulmonary function tests (PFT's) did not contain data on abnormal findings (N = 2).[46,153] Studies examining routine preoperative spirometry reported abnormal findings in 15.0–51.7% of cases (N = 3 studies).[154–156] Findings for indicated preoperative PFT's were reported as abnormal in 17.0–27.1% of cases (N = 3 studies),[157–159] and indicated preoperative spirometry (a limited form of PFT's) were reported as abnormal in 33.1–45.0% of cases (N = 3 studies).[30,157,160] Changes in clinical management were not reported. No studies were found that reported results of routine preanesthesia office spirometry (*i.e.*, portable or hand held spirometers).

Hemoglobin and Hematocrit Measurement. Routine hemoglobin measurements were reported as abnormal in 0.5–43.8% of cases (N = 7 studies)[102,133,161–165] and led to changes in clinical management in 0%-28.6% of the cases found to be abnormal (N = 3 studies).[102,161,164] Indicated hemoglobin measurements were reported as abnormal in 38.6–62.0% of cases (N = 2 studies).[166,167] Changes in clinical management were not reported.

Routine hematocrit measurements were reported as abnormal in 0.2–38.9% of cases (N = 5 studies)[136,162,168–170] and led to changes in clinical management in 0–100% of the cases found to be abnormal (N = 3 studies).[136,168,170] Indicated hematocrit measurements were reported as abnormal in 0.4–5.0% of cases (N = 2 studies).[51,148] Changes in clinical management were not reported.

In studies reporting routine complete blood counts (*i.e.*, individual test results not reported), abnormal findings were reported in 2.9–17.6% of cases (N = 4 studies)[92,98,171–172] and led to changes in clinical management in 2.4% of the cases found to be abnormal (N = 1 study).[172] For indicated complete blood counts, abnormal findings were reported in 6.3–60.8% of cases (N = 4 studies)[92,107,108,112] and led to changes in clinical management in 0.0%-14.9% of the cases found to be abnormal (N = 2 studies).[108,112]

Coagulation Studies. Routine coagulation studies reported abnormalities in bleeding time, prothrombin time, partial prothrombin time, or platelet count in 0.8–22.0% of cases (N = 15 studies)[13,136,162,173–184] and led to changes in clinical management in 1.1–4.0% of the cases found to be abnormal (N = 2 studies).[13,136] Findings for indicated coagulation studies were reported as abnormal in 3.4–29.1% of cases (N = 4 studies).[183,185–187] Changes in clinical management were not reported. The incidence of routine coagulation study abnormalities in patients scheduled for regional anesthesia or postoperative analgesia in surgical patients has not been reported. The incidence of routine coagulation study abnormalities in obstetric patients has not been reported.

Serum Chemistries. In routine preoperative potassium tests, abnormal levels of potassium were found in 1.5–12.8% of cases (N = 3 studies).[133,162,188] For indicated potassium tests, abnormal levels were found in 1.0–29.5% of cases (N = 4 studies).[51,148,189,190] One randomized clinical trial compared preoperative serum potassium levels at induction with serum potassium levels 3 days before surgery, and found lower potassium levels (hypokalemia) at induction.[188] No blinded studies were found that assessed the benefits or harms of practitioner awareness of potassium abnormalities.

In routine preoperative glucose tests in nondiabetic patients or patients without altered glucose metabolism, abnormal levels of glucose were found in 5.4–13.8% of cases (N = 3 studies).[133,162,171] Changes in clinical management were not reported.

Urine Testing. In routine preoperative urinalysis (not including pregnancy testing), abnormal results were reported in 0.7–38.0% of cases (N = 9 studies)[92,96,102,136,162,170,172,191,192] and led to changes in clinical management in 2.3–100% of the cases found to be abnormal (N = 6 studies).[102,136,170,172,191,192] For indicated urinalysis, abnormal results were found in 4.6–42.0% of cases (N = 4 studies)[92,108,112,148] and led to changes in clinical management in 0.0–23.1% of the cases found to be abnormal (N = 2 studies).[108,112]

Pregnancy Testing. Routine pregnancy tests (routine refers to premenopausal menstruating females, not excluding anyone on the basis of history) resulted in positive findings in 0.3–2.2% of cases (N = 5 studies)[193–197] and led to changes in clinical management, delays or cancellation of surgery in 100% of the cases found to be pregnant.

Consultants and ASA members were asked to consider whether specific preoperative tests should be conducted (1) on a routine basis (*i.e.*, given to patients regardless of known or suspected diseases or disorders), (2) for selected patients or for selected types of surgery, or (3) the test is not necessary. For the tests considered, consultant and ASA membership responses are reported in table 3. Consultants and ASA members were also asked to identify specific patient characteristics that would favor a decision to order, require, or perform a preoperative test. For these specific patient characteristics, consultant and ASA membership responses are reported in table 4.

Consultants and ASA members were asked whether selected preoperative tests are acceptable if obtained from the patient's medical chart, assuming the patient's medical history has not changed substantially since the test was obtained. Majority opinions of consultants and ASA members are reported as percentage agreement, respectively, as follows:

1. Electrocardiogram (99%, 98%)
2. Other cardiac evaluation (94%, 98%)
3. Chest x-ray (97%, 92%)

Table 3. Routine or Selective Preoperative Testing–Survey Opinions

Preoperative Test	All Patients (Routine) % Agreement*	Selected Patients % Agreement	Test Not Necessary % Agreement
Electrocardiogram			
Consultants (N = 72)	0	100%	0
ASA members (N = 233)	1%	98%	1%
Cardiac tests other than electrocardiogram			
Consultants (N = 72)	0	97%	0
ASA members (N = 233)	1%	99%	0
Chest x-rays			
Consultants (N = 72)	3%	90%	7%
ASA members (N = 233)	1%	92%	6%
Pulmonary function tests			
Consultants (N = 42)	0	98%	2%
ASA members (N = 234)	0	96%	3%
Office spirometry			
Consultants (N = 42)	0	88%	10%
ASA members (N = 234)	1%	63%	20%
Hemoglobin/hematocrit			
Consultants (N = 72)	3%	96%	1%
ASA members (N = 234)	4%	95%	1%
Coagulation studies			
Consultants (N = 72)	3%	94%	1%
ASA members (N = 234)	1%	98%	1%
Serum chemistries			
Consultants (N = 72)	1%	99%	0
ASA members (N = 234)	1%	99%	0
Urinalysis			
Consultants (N = 72)	1%	53%	46%
ASA members (N = 233)	2%	47%	49%
Pregnancy test			
Consultants (N = 72)	7%	88%	5%
ASA members (N = 232)	17%	78%	3%

* Row percentages do not include "don't know" responses, therefore row totals may not equal 100%.

ASA = American Society of Anesthesiologists.

4. Hemoglobin/hematocrit (99%, 96%)
5. Coagulation studies (86%, 98%)
6. Serum chemistries (96%, 98%)

Respondents who agreed that test findings might be obtained from a patient's medical chart were asked how recent the findings should be in order to be acceptable. Opinions on how recent test findings should be are reported in table 5.

Advisory

Routine Preoperative Testing

The current literature is not sufficiently rigorous to permit an unambiguous assessment of the clinical benefits or harms of routine preoperative tests. The studies examined by the Task Force reported a wide range of abnormal results associated with preoperative testing. When abnormal or positive results were found, the percentage of patients with subsequent changes in their clinical management varied widely.

The Task Force agrees with the consultants and ASA members that preoperative tests should not be ordered routinely. The Task Force agrees that preoperative tests may be ordered, required, or performed *on a selective basis* for purposes of guiding or optimizing perioperative management. The indications for such testing should be documented and based on information obtained from medical records, patient interview, physical examination, and type and invasiveness of the planned procedure. Public commentary from open forums corroborates the Task Force consensus.

Preoperative Testing in the Presence of Specific Clinical Characteristics

The current literature is not sufficiently rigorous to permit an unambiguous assessment of the clinical benefits or harms associated with selected preoperative test findings. The studies examined by the Task Force reported a wide range of abnormal preoperative test results. In addition, when abnormal or positive results were found, the percentage of patients with subsequent changes in their clinical management varied widely. Few randomized controlled trials were found that examined the outcomes for patients who had *routine* preoperative tests compared with outcomes for patients with *indicated* preoperative tests.[198]

The Task Force believes that there is insufficient evidence to identify explicit decision parameters or rules for ordering preoperative tests on the basis of specific clinical characteristics. However, the Task Force believes that consideration of selected clinical characteris-

Table 4. Patient Characteristics for Selected Preoperative Testing

Preoperative Test	Patient Characteristics	Consultants (N = 72)	ASA Members (N = 234)
Electrocardiogram	Advanced age	93%	94%
	Cardiocirculatory disease	97%	98%
	Respiratory disease	74%	74%
Other cardiac evaluation (*e.g.* stress test)	Cardiovascular compromise	88%	95%
Chest radiograph	Recent upper respiratory infection	45%	59%
	Smoking	42%	60%
	COPD	71%	76%
	Cardiac disease	62%	75%
Pulmonary function tests	Reactive airway disease	68%	71%
	COPD	80%	89%
	Scoliosis	53%	60%
Office spirometry (*i.e.* portable spirometer)	Reactive airway disease	83%	86%
	COPD	77%	90%
	Scoliosis	51%	52%
Hemoglobin/hematocrit	Advanced age	57%	68%
	Very young age	52%	56%
	Anemia	96%	99%
	Bleeding disorders	93%	94%
	Other hematological disorders	74%	84%
Coagulation studies	Bleeding disorders	99%	98%
	Renal dysfunction	40%	52%
	Liver dysfunction	97%	91%
	Anticoagulants	97%	96%
Serum chemistries (sodium, potassium, carbon dioxide, chloride, glucose)	Endocrine disorders	93%	95%
	Renal dysfunction	96%	98%
	Medications	87%	89%
Pregnancy test	Uncertain pregnancy history	84%	91%
	History suggestive of current pregnancy	94%	96%

ASA = American Society of Anesthesiologists; COPD = chronic obstructive pulmonary disease.

tics may assist the anesthesiologist when deciding to order, require, or perform preoperative tests. The following clinical characteristics may be of merit, although anesthesiologists should not limit their consideration only to those suggested below.

Electrocardiogram. The Task Force agrees that important clinical characteristics may include cardiocirculatory disease, respiratory disease, and type or invasiveness of surgery. The Task Force recognizes that electrocardiogram abnormalities may be higher in older patients and in patients with multiple cardiac risk factors.

No consensus was obtained from the consultants and ASA membership regarding a minimum age for obtaining a preanesthesia electrocardiogram. The Task Force did not reach consensus on a specific minimum age in those

Table 5. Timing of Test Findings–Survey Opinions

Preoperative Test	24 h	48 h	1 wk	2 wk	1 mo	3 mo	6 mo	1 yr	>1 yr
Electrocardiogram									
Consultants (N = 72)	0	0	4%	—	31%	—	46%	19%	0
ASA members (N = 218)	1%	0	6%	—	34%	—	45%	12%	2%
Other cardiac tests									
Consultants (N = 72)	0	0	5%	—	33%	—	27%	26%	10%
ASA members (N = 217)	0	0	7%	—	33%	—	40%	18%	4%
Chest x-ray									
Consultants (N = 72)	0	5%	5%	—	25%	23%	19%	23%	—
ASA members (N = 206)	0	2%	8%	—	27%	9%	31%	23%	—
Hemoglobin/hematocrit									
Consultants (N = 72)	—	—	14%	8%	42%	23%	8%	5%	—
ASA members (N = 213)	—	—	13%	11%	46%	17%	11%	1%	—
Coagulation studies									
Consultants (N = 42)	28%	11%	30%	6%	19%	6%	—	—	—
ASA members (N = 194)	33%	16%	26%	6%	16%	4%	—	—	—
Serum chemistries									
Consultants (N = 72)	15%	7%	27%	17%	27%	7%	—	—	—
ASA members (N = 203)	11%	12%	26%	9%	34%	7%	—	—	—

ASA = American Society of Anesthesiologists.

patients without specific risk factors. The Task Force recognizes that age alone may not be an indication for an electrocardiogram. The Task Force agrees that an electrocardiogram may be indicated for patients with known cardiovascular risk factors or for patients with risk factors identified in the course of a preanesthesia evaluation.

Preanesthesia Cardiac Evaluation (other than Electrocardiogram). Preanesthesia cardiac evaluation may include consultation with specialists and ordering, requiring, or performing tests that range from noninvasive passive or provocative screening tests (*e.g.*, stress testing) to noninvasive and invasive assessment of cardiac structure, function, and vascularity (*e.g.*, echocardiogram, radionucleotide imaging, cardiac catheterization). Anesthesiologists should balance the risks and costs of these evaluations against their benefits. Clinical characteristics to consider include cardiovascular risk factors and type of surgery.

Preanesthesia Chest Radiographs (X-ray). Clinical characteristics to consider include smoking, recent upper respiratory infection, chronic obstructive pulmonary disease (COPD), and cardiac disease. The Task Force recognizes that chest radiographic abnormalities may be higher in such patients, but does not believe that extremes of age, smoking, stable COPD, stable cardiac disease, or resolved recent upper respiratory infection should be considered unequivocal indications for chest radiography.

Preanesthesia Pulmonary Evaluation (other than Chest X-ray). Preanesthesia pulmonary evaluation other than chest x-ray may include consultation with specialists and tests that range from noninvasive passive or provocative screening tests (*e.g.*, pulmonary function tests, spirometry, pulse oximetry) to invasive assessment of pulmonary function (*e.g.*, arterial blood gas). Anesthesiologists should balance the risks and costs of these evaluations against their benefits. Clinical characteristics that the Task Force believes should be considered include type and invasiveness of the surgical procedure, interval from prior evaluation, treated or symptomatic asthma, symptomatic COPD, and scoliosis with restrictive function.

Preanesthesia Hemoglobin or Hematocrit. The Task Force believes that routine hemoglobin or hematocrit is not indicated. Clinical characteristics to consider as indications for such tests include type and invasiveness of procedure, patients with liver disease, extremes of age, history of anemia, bleeding, and other hematologic disorders.

Preanesthesia Coagulation Studies (*e.g.*, INR, PT, PTT, platelets). Clinical characteristics to consider for ordering selected coagulation studies include bleeding disorders, renal dysfunction, liver dysfunction, and type and invasiveness of procedure. The Task Force recognizes that anticoagulant medications and alternative therapies may present an additional perioperative risk. The Task Force believes that there were not enough data to comment on the advisability of coagulation tests before regional anesthesia. The Task Force strongly recommends appropriately controlled studies of such specific indications.

Preanesthesia Serum Chemistries (*i.e.*, Potassium, Glucose, Sodium, Renal and Liver Function Studies). The Task Force recognizes that laboratory values may differ from normal values at extremes of age. Clinical characteristics to consider before ordering such tests include likely perioperative therapies, endocrine disorders, risk of renal and liver dysfunction, and use of certain medications or alternative therapies.

Preanesthesia Urinalysis. The consensus of the Task Force is that urinalysis is not indicated except for specific procedures (*e.g.*, prosthesis implantation, urologic procedures) or when urinary tract symptoms are present.

Preanesthesia Pregnancy Testing. The Task Force recognizes that a history and physical examination may be insufficient for identification of early pregnancy. Pregnancy testing may be *considered* for all female patients of childbearing age. Clinical characteristics to consider include an uncertain pregnancy history or a history suggestive of current pregnancy.

Timing of Preoperative Testing

The current literature is not sufficiently rigorous to permit an unambiguous assessment of the clinical benefits or harms of the timing for preoperative tests. The Task Force believes that there is insufficient evidence to identify explicit decision parameters or rules for ordering preoperative tests on the basis of specific patient factors.

The Task Force believes that test results obtained from the medical record within 6 months of surgery are generally acceptable if the patient's medical history has not changed substantially. More recent test results may be desirable when the medical history has changed, or when test results may play a role in the selection of a specific anesthetic technique (*e.g.*, regional anesthesia in the setting of anticoagulation therapy.) Public commentary from open forums and from the Internet corroborates the Task Force consensus.

Summary and Conclusions

A preanesthesia evaluation involves the assessment of information from multiple sources, including medical records, patient interviews, physical examinations, and findings from preoperative tests.

The current scientific literature does not contain sufficiently rigorous information about the components of a preanesthesia evaluation to permit recommendations

that are unambiguously based. Therefore, the Task Force has relied primarily upon noncontrolled literature, opinion surveys of consultants, and opinion surveys of a random sample of members of the ASA. The focus of opinion surveys has been threefold (1) the content of the preanesthesia evaluation, (2) the timing of the preoperative evaluation, and (3) the indications for specific preoperative tests.

The following remarks represent a synthesis of the opinion surveys, literature and Task Force consensus:

1. *Content* of the preanesthesia evaluation includes but is not limited to (1) readily accessible medical records, (2) patient interview, (3) a directed preanesthesia examination, (4) preoperative tests when indicated, and (5) other consultations when appropriate. At a *minimum*, a directed preanesthesia physical examination should include an assessment of the airway, lungs, and heart.

2. *Timing* of the preanesthesia evaluation can be guided by considering combinations of surgical invasiveness and severity of disease, as shown in table 2. The Task Force cautions that limitations in resources available to a specific healthcare system or practice environment may impact the timing of the preanesthesia evaluation. The healthcare system is obligated to provide pertinent information to the anesthesiologist for the appropriate assessment of the invasiveness of the proposed surgical procedure and the severity of the patient's medical condition well in advance of the anticipated day of procedure for all elective patients.

3. *Routine preoperative tests* (*i.e.*, tests intended to discover a disease or disorder in an asymptomatic patient) do not make an important contribution to the process of perioperative assessment and management of the patient by the anesthesiologist.

4. *Selective preoperative tests* (*i.e.*, tests ordered after consideration of specific information obtained from sources such as medical records, patient interview, physical examination, and the type or invasiveness of the planned procedure and anesthesia) may assist the anesthesiologist in making decisions about the process of perioperative assessment and management.

5. *Decision-making parameters* for specific preoperative tests or for the timing of preoperative tests cannot be unequivocally determined from the available scientific literature. Further research is needed, preferably in the form of appropriately randomized clinical trials. Specific tests and their timing should be individualized and based upon information obtained from sources such as the patient's medical record, patient interview, physical examination, and the type and invasiveness of the planned procedure.

The references listed here do not represent a complete bibliography of the literature reviewed. A complete bibliography is available by writing to the American Society of Anesthesiologists or by accessing the ANESTHESIOLOGY Web site: http://www.anesthesiology.org.

References

1. Bando K, Sun K, Binford RS, Sharp T: Determinants of longer duration of endotracheal intubation after adult cardiac operations. Ann Thorac Surg 1997; 63:1026–33

2. Biavati M, Manning SC, Phillips DL: Predictive factors for respiratory complications after tonsillectomy and adenoidectomy in children. Arch Otolaryngol Head Neck Surg 1997; 123:517–21

3. Blake DW, McGrath BP, Donnan GB, Smart S, Way D, Myers KA, Fullerton M: Influence of cardiac failure on atrial natriuretic peptide responses in patients undergoing vascular surgery. European J Anaesth 1991; 8:365–71

4. Brooks-Brunn JA: Predictors of postoperative pulmonary complications following abdominal surgery. Chest 1997; 111:564–71

5. Brummett C, Reves JG, Lell WA, Smith LR: Patient care problems in patients undergoing reoperation for coronary artery grafting surgery. Can Anaesth Soc J 1984; 31:213–20

6. Bruton NH, Maree SM: A case approach: The pathophysiology of thyroid storm. Aana J 51:295–1983;301:303

7. Burgos LG, Ebert TJ, Asiddao C, Turner LA, Pattison CZ, Wang Cheng R, Kampine JP: Increased intraoperative cardiovascular morbidity in diabetics with autonomic neuropathy. ANESTHESIOLOGY 1989; 70:591–7

8. Burrows FA, Hickey PR, Colan S: Perioperative complications in patients with anthracycline chemotherapeutic agents. Can Anaesth Soc J 1985; 32:149–57

9. Calverley RK, Johnston AE: The anaesthetic management of tracheo-oesophageal fistula: a review of ten years' experience. Can Anaesth Soc J 1972; 19:270–82

10. Carson JM, Van Sickels JE: Preoperative determination of susceptibility to malignant hyperthermia. J Oral Maxillofac Surg 1982; 40:432–5

11. Charlson ME, MacKenzie CR, Gold JP, Ales KL, Shires GT: Postoperative renal dysfunction can be predicted. Surgery, Gynecol Obstet 1989; 169:303–9

12. Clarke Pearson DL, DeLong ER, Synan IS, Coleman RE, Creasman WT: Variables associated with postoperative deep venous thrombosis: a prospective study of 411 gynecology patients and creation of a prognostic model. Obstet Gynecol 1987; 69:146–50

13. Close HL, Kryzer TC, Nowlin JH, Alving BM: Hemostatic assessment of patients before tonsillectomy: a prospective study. Otolaryngol Head Neck Surg 1994; 111:733–8

14. Cohen MM, Cameron CB: Should you cancel the operation when a child has an upper respiratory tract infection? Anesth Analg 1991; 72:282–8

15. Cullen DJ, Apolone G, Greenfield S, Guadagnoli E, Cleary P: ASA Physical Status and age predict morbidity after three surgical procedures. Ann Surg 1994; 220:3–9

16. Diaz JH: Halothane anesthesia in infancy: identification and correlation of preoperative risk factors with intraoperative arterial hypotension and postoperative recovery. J Pediat Surg 1985; 20:502–7

17. Dorrington KL: Asystole with convulsion following a subanesthetic dose of propofol plus fentanyl. Anaesthesia 1989; 44:658–9

18. Dripps RD, Lamont A, Eckenhoff JE: The role of anesthesia in surgical mortality. JAMA 1961; 178:261–6

19. Dudley JC, Brandenburg JA, Hartley LH, Harris S, Lee TH: Last-minute preoperative cardiology consultations: epidemiology and impact. Am Heart J 1996; 131:245–9

20. Duncan PG, Cohen MM, Tweed WA, Biehl D, Pope WD, Merchant RN, DeBoer D: The Canadian four-centre study of anaesthetic outcomes: III. Are anaesthetic complications predictable in day surgical practice? Can J Anaesth 1992; 39:440–8

21. Duncan PG, Cohen MM: Postoperative complications: factors of significance to anaesthetic practice. Can J Anaesth 1987; 34:2–8

22. Forrest JB, Rehder K, Cahalan MK, Goldsmith CH: Multicenter study of general anesthesia. III. Predictors of severe perioperative adverse outcomes [published erratum appears in Anesthesiology 1992 Jul;77(1):222]. ANESTHESIOLOGY 1992; 76:3–15

23. Garibaldi RA, Britt MR, Coleman ML, Reading JC, Pace NL: Risk factors for postoperative pneumonia. Am J Med 1981; 70:677–80

24. Goldman L, Caldera DL, Southwick FS, Nussbaum SR, Murray B, O'Malley TA, Goroll AH, Caplan CH, Nolan J, Burke DS, Krogstad D, Carabello B, Slater EE: Cardiac risk factors and complications in non-cardiac surgery. Medicine 1978; 57:357–70

25. Greaves SC, Rutherford JD, Aranki SF, Cohn LH, Couper GS, Adams DH, Rizzo RJ, Collins JJ, Antman EM: Current incidence and determinants of perioperative myocardial infarction in coronary artery surgery. Am Heart J 1996; 132:572–8

26. Horlocker TT, Wedel DJ, Offord KP: Does preoperative antiplatelet therapy increase the risk of hemorrhagic complications associated with regional anesthesia? Anesth Analg 1990; 70:631–4

27. Hovagim AR, Vitkum SA, Manacke GR, Reiner R: Arterial oxygen desaturation in adult dental patients receiving conscious sedation. J Oral Maxill ac Surg 1989; 47:936–9
28. Hubbert CH, Adams JG: Anesthetic management of patients with epidermolysis bullosa. South Med J 1977; 70:1375–7
29. Kleinman B, Czinn E, Shah K, Sobotka PA, Rao TK: The value to the anesthesia-surgical care team of the preoperative cardiac consultation. J Cardiothorac Anesth 1989; 3:682–7
30. Kroenke K, Lawrence VA, Theroux JF, et al.: Postoperative complications after thoracic and major abdominal surgery in patients with and without obstructive lung disease. Chest 1993; 104:1445–51
31. Kurki TSO, Kataja M: Preoperative prediction of postoperative morbidity in coronary artery bypass grafting. Ann Thorac Surg 1996; 61:1740–5
32. Lawrence VA, Dhanda R, Hilsenbeck SG, Page CP: Risk of pulmonary complications after elective abdominal surgery. Chest 1996; 110(3):744–50
33. Leung JM, Hollenberg M, O'Kelly BF, Kao A, Mangano DT: Effects of steal-prone anatomy on intraoperative myocardial ischemia. The SPI Research Group. J Am Coll Cardiol 1992; 20:1205–12
34. Luebke NH, Walker JA: Discussion of sensitivity to preservatives in anesthetics. J Am Dental Assoc 1978; 97:656–7
35. Michelson JD, Lotke PA, Steinberg ME: Urinary-bladder management after total joint-replacement surgery. N Eng J Med 1988; 319:321–6
36. Mudge BJ, Taylor PB, Vanderspek AF: Perioperative hazards in myotonic dystrophy. Anaesthesia 1980; 35:492–5
37. Naef RW3, Chauhan SP, Chevalier SP, Roberts WE, Meydrech EF, Morrison JC: Prediction of hemorrhage at cesarean delivery. Obstet Gynecol 1994; 83: 923–6
38. Neuman GG, Baldwin CC, Petrini AJ, Wise L, Wollman SB: Perioperative management of a 430-kilogram (946-pound) patient with Pickwickian syndrome. Anesth Analg 1986; 65:985–7
39. Olsson GL: Bronchospasm during anaesthesia. A computer-aided incidence study of 136,929 patients. Acta Anaesth Scand 1987; 31:244–52
40. Paul SD, Eagle KA, Kuntz KM, Young JR, Hertzer NR: Concordance of preoperative clinical risk with angiographic severity of coronary artery disease in patients undergoing vascular surgery. Circulation 1996; 94:1561–6
41. Pedersen T, Eliasen K, Henriksen E: A prospective study of risk factors in cardiopulmonary complications associated with anaesthesia and surgery: risk indicators of cardiopulmonary morbidity. Acta Anesth Scand 1990; 34:144–55
42. Pedersen T, Viby Mogensen J, Ringsted C: Anaesthetic practice and postoperative pulmonary complications. Acta Anaesth Scand 1992; 36:812–8
43. Phillips EH, Carroll BJ, Fallas MJ, Pearlstein AR: Comparison of laproscopic cholecystectomy in obese and non-obese patients. Am Surg 1994; 60:316–21
44. Plaugher ME: Emergent exploratory laparotomy for a patient with recent Guillain-Barr'e recurrence: a case report. AANA J 1994; 62:437–40
45. Poe RH, Kallay MC, et al.: Can postoperative pulmonary complications after elective cholecystectomy be predicted? Am J Med Sci 1988; 295:29–34
46. Rao MK, Reilley TE, Schuller DE, Young DC: Analysis of risk factors for postoperative pulmonary complications in head and neck surgery. Laryngoscope 1992; 102:45–7
47. Ravin M, Newmark Z, Saviello G: Myotonia dystrophica–an anesthetic hazard: two case reports. Anesth Analg 1975; 54:216–8
48. Royster RL, Butterworth JF4, Prough DS, et al.: Preoperative and intraoperative predictors of inotropic support and long-term outcome in patients having coronary artery bypass grafting. Anesth Analg 1991; 72:729–36
49. Sandler G: Costs of unnecessary tests. BMJ 1979; 2:21–4
50. Schweizer P, Warth H, Leriche C: Studies to be conducted before projected operations from the pediatric surgeon's point of view. Eur J Pediatr Surg 1991; 1:135–8
51. Shah KB, Kleinman BS, Rao TL, Jacobs HK, Mestan K, Schaafsma M: Angina and other risk factors in patients with cardiac diseases undergoing noncardiac operations. Anesth Analg 1990; 70:240–7
52. Skolnick ET, Vomvolakis MA, Buck KA, Mannino SF, Sun LS: Exposure to environmental tobacco smoke and the risk of adverse respiratory events in children receiving general anesthesia. Anesthesiology 1998; 88:1144–53
53. Steen PA, Tinker JH, Tarhan S: Myocardial reinfarction after anesthesia and surgery. JAMA 1978; 239:2566–70
54. Svensson LG, Hess KR, Coselli JS, Safi HJ, Crawford S: A prospective study of respiratory failure after high-risk surgery on the thoracoabdominal aorta. J Vasc Surg 1991; 14:271–82
55. Tait AR, Knight PR: The effects of general anesthesia on upper respiratory tract infections in children. Anesthesiology 1987; 67:930–5
56. Vanzetto G, Machecourt J, Blendea D, Fagret D, Borrel E, Magne JL, Gattaz F, Guidicelli H: Additive value of thallium single-photon emission computed tomography myocardial imaging for prediction of perioperative events in clinically selected high cardiac risk patients having abdominal aortic surgery. Am J Cardiol 1996; 77:143–8
57. Velanovich V: Preoperative screening electrocardiography: predictive value for postoperative cardiac complications. Southern Med J 1994; 87:431–4
58. von Knorring J: Postoperative myocardial infarction: a prospective study in a risk group of surgical patients. Surgery 1981; 90:55–60
59. Waga S, Shimosaka S, Sakakura M: Intracerebral hemorrhage remote from the site of the initial neurosurgical procedure. Neurosurgery 1983; 13:662–5
60. Warner MA, Offerd KP, Warner ME, Lennon RL, Conover MA, Jansson-Schumacher U: Role of preoperative cessation of smoking and other factors in postoperative pulmonary complications: a blinded prospective study of coronary artery bypass patients. Mayo Clin Proc 1989; 64:609–16
61. Wightman JA: A prospective survey of the incidence of postoperative pulmonary complications. Br J Surg 1968; 55:85–91
62. Wong DH, Weber EC, Schell MJ, Wong AB, Anderson CT, Barker SJ: Factors associated with postoperative pulmonary complications in patients with severe chronic obstructive pulmonary disease. Anesth Analg 1995; 80:276–84
63. Yagiela JA: Preoperative assessment of patients for conscious sedation and general anesthesia. Anesth Prog 1986; 33:178–81
64. Burman AL: A pre-anaesthetic clinic. S Afr Med J 1968; 42:315–7
65. Clark SK, Leighton BL, Seltzer JL: A risk-specific anesthesia consent form may hinder the informed consent process. J Clin Anesth 1991; 3:11–3
66. Cohen MM, Duncan PG: Physical status score and trends in anesthetic complications. J Clin Epidemiol 1988; 41:83–90
67. Baxter MA: Acromegaly and transsphenoidal hypophysectomy: a case report. Aana J 1994; 62:182–5
68. Befani KG, Krivit W, Carpenter BL, Braunlin E, Buckley JJ, Liao JC, Floyd T, Leonard AS, Summers CG, : Children with mucopolysaccharidosis: perioperative care, morbidity, mortality, and new findings. J Pediat Surg 1993; 28:403–8
69. Bissonnette B, Sullivan PJ: Pyloric stenosis. Can J Anaesth 1991; 38:668–76
70. Chan VW, Tindal S: Anaesthesia for transsphenoidal surgery in a patient with extreme gigantism. Br J Anaesth 1988; 60:464–8
71. Chung F, Crago RR: Sleep apnoea syndrome and anaesthesia. Can Anaesth Soc J 1982; 29:439–45
72. Cole RR, Cotton RT: Preventing postoperative complications in the adult cystic fibrosis patient. Int J Pediatr Otorhinolaryngol 1990; 18:263–9
73. Eikenbary KF: Pyloric stenosis: its anesthetic management and a case study. AANA J 1978; 46:517–21
74. Fox M, Courtney S, Wilkinson PA: Mortality and morbidity of prostatectomy. How far does preselection and pre-operative care influence the result? Eur Urol 1991; 20:277–81
75. Galloway JA, Shuman CR: Profile, specific methods of management, and response of diabetic patients to anesthesia and surgery. Int Anesth Clin 1967; 5:437–66
76. Hannon VM, Cunningham AJ, Hutchinson M, McNicholas W: Aspiration pneumonia and coma–an unusual presentation of dystrophic myotonia. Can Anaesth Soc J 1986; 33:803–6
77. Jastak JT, Peskin RM: Major morbidity or mortality from office anesthetic procedures: a closed-claim analysis of 13 cases. Anesth Prog 1991; 38:39–44
78. Kelsey M: Ophthalmic medications, glaucoma, and the surgical patient. J Post-Anesth Nursing 1992; 7:312–6
79. Kitahata LM: Airway difficulties associated with anaesthesia in acromegaly. Three case reports. Br J Anaesth 1971; 43:1187–90
80. Lai CS, Lin SD, Yang CC, Chou CK, Tsai CW: Tracheal deviation: an unusual complication of platysma myocutaneous flap. Kao-Hsiung I Hsueh Ko Hsueh Tsa Chih [Kaohsiung J Of Med Sciences] 1993; 9:118–21
81. Malan MD, Crago RR: Anaesthetic considerations in idiopathic orthostatic hypotension and the Shy-Drager syndrome. Can Anaesth Soc J 1979; 26:322–7
82. McKee RF, Scott EM: The value of routine preoperative investigations. Annals Royal Col Surg Eng 1987; 69:160–2
83. Patel RI, Hannallah RS: Preoperative screening for pediatric ambulatory surgery: evaluation of a telephone questionnaire method. Anesth Analg 1992; 75:258–61
84. Prause G, Ratzenhofer-Komenda B, Smolle-Juettner F, Krenn H, Pojer H, Toller W, Voit H, Offner A, Smolle J: Operations on patients deemed "unfit for operation and anaesthesia": what are the consequences? Acta Anaesth Scand 1998; 42:316–22
85. Putnam LP: Pseudocholinesterase deficiency: an additional preoperative consideration in outpatient diagnostic procedures. South Med J 1977; 70:831–2
86. Rockoff AS, Christy D, Zeidis N, Tsai DJ, Kramer RA: Myocardial necrosis following general anesthesia in hemoglobin SC disease. Pediatrics 1978; 61:73–6
87. Rodriguez R, Herrin TJ, Hendrickson M: Cardiac and thoracic vascular injuries: anesthetic considerations. South Med J 1980; 73:739–41
88. Rosenblatt MA, Bradford C, Miller R, Zahl K: A preoperative interview by an anesthesiologist does not lower preoperative anxiety in outpatients. Anesthesiology 1989; 71:A926
89. Tobias JD, Lowe S, Holcomb GW3: Anesthetic considerations of an infant with Beckwith-Wiedemann syndrome. J Clin Anesth 1992; 4:484–6
90. Wehner RJ, McKennett RJ: A case study: management of the patient with laryngeal tumor and airway compromise. Aana J 1982; 50:81–3
91. Wittmann FW, Ring PA: Anaesthesia for hip replacement in ankylosing spondylitis. J Royal Soc Med 1986; 79:457–9
92. Adams JG, Weigelt JA, Poulos E: Usefulness of preoperative laboratory assessment of patients undergoing elective hemiorrhaphy. Arch Surg 1992; 127:801–5
93. Callaghan LC, Edwards ND, Reilly CS: Utilisation of the pre-operative ECG. Anaesthesia 1995; 50:488–90
94. Fleisher LA, Rosenbaum SH, Nelson AH, Jain D, Wackers FJT, Zaret BL: Preoperative dipyridamole thallium imaging and ambulatory electrocardiographic monitoring as a predictor of perioperative cardiac events and long-term outcome. Anesthesiology 1995; 83:906–17
95. Gold BS, Young ML, Kinman JL, Kitz DS, Berlin J, Schwartz JS: The utility

of preoperative electrocardiograms in the ambulatory surgical patient. Arch Internal Med 1992; 152:301–5

96. Golub R, Cantu R, Sorrento JJ, Stein HD: Efficacy of preadmission testing in ambulatory surgical patients. Am J Surgery 1992; 163:565–70

97. Liu S, Paul GE, Carpenter RL, Stephenson C, Wu R: Prolonged PR interval is a risk factor for bradycardia during spinal anesthesia. Regional Anesthesia 1995; 20:41–4

98. Perez A, Planell J, Bacardaz C, Hounie A, Franci J, Brotons C, Congost L, Bolibar I: Value of routine preoperative tests: a multicentre study in four general hospitals. Br J Anaesth 1995; 74:250–6

99. Rabkin SW, Horne JM: Preoperative electrocardiography: its cost-effectiveness in detecting abnormalities when a previous tracing exists. Can Med Assoc J 1979; 121:301–5

100. Sommerville TE, Murray WB: Information yield from routine preoperative chest radiography and electrocardiography. S Afr Med J 1992; 81/4:190–6

101. Tait AR, Parr HG, Tremper KK: Evaluation of the efficacy of routine preoperative electrocardiograms. J Cardiothorac Vasc Anesth 1997; 11:752–5

102. Turnbull JM, Buck C: The value of preoperative screening investigations in otherwise healthy individuals. Arch Int Med 1987; 147:1101–5

103. Walton HJ, Cross P, Pollak EW: Ventricular cardiac arrhythmias during anesthesia: feasibility of preoperative recognition. South Med J 1982; 75:27–9, 32

104. Bhuripanyo K, Prasertchuung C, Viwathanatepa M, Khumsuk K, Sompanya N: The impact of routine preoperative electrocardiogram in patients age > 40 years in Srinagarind Hospital. J Of The Med Assoc Thai 1992; 75:399–406

105. Carliner NH, Fisher ML, Plotnick GD, Garbart H, Rapoport A, Kelemen MH, Moran GW, Gadacz T, Peters RW: Routine preoperative exercise testing in patients undergoing major noncardiac surgery. Am J Cardiol 1985; 56:51–8

106. Catchlove BR, Wilson RM, Spring S, Hall J: Routine investigations in elective surgical patients. Their use and cost effectiveness in a teaching hospital. Med J Aust 1979; 2:107–10

107. Diamond GA, Forrester JS : Analysis of probability as an aid in the clinical diagnosis of coronary-artery disease NEJM 1979; 300: 1350–8

108. Johnson H, Knee-Ioli S, Butler TA, Munoz E, Wise L: Are routine preoperative laboratory screening tests necessary to evaluate ambulatory surgical patients. Surgery 1988; 104:639–45

109. Kahn RL, Hargett MJ, Urquhart B, Sharrock NE, Peterson MG: Supraventricular tachyarrhythmias during total joint arthroplasty. Incidence and risk. Clin Orthopaed & Related Res 1993; 265–9

110. Knight AA, Hollenberg M, London MJ, Tubau J, Verrier E, Browner W, Mangano DT: Perioperative myocardial ischemia: Importance of the preoperative ischemic pattern. ANESTHESIOLOGY 1988; 68:681–8

111. Murdoch CJ, Murdoch DR, McIntyre P, Hoste H, Clark C: The preoperative ECG in day surgery: a habit? Anaesthesia 1999;54:907–8

112. Muskett AD, McGreevy JM: Rational preoperative evaluation. Postgrad Med J 1986; 62:925–8

113. Ombrellaro MP, Freeman MB, Stevens SL: Effect of anesthetic technique on cardiac morbidity following carotid artery surgery. Am J Surg 1996; 171: 387–90

114. Raby KE, Goldman L, Creager MA, Cook EF, Weisberg MC, Whittemore AAD, Selwyn AP: Correlation between preoperative ischemia and major cardiac events after peripheral vascular surgery. NEJM 1989; 321(19):1296–300

115. Rettke SR, Shub C, Naessens JM, Marsh HM, O'Brien JF: Significance of mildly elevated creatine kinase (myocardial band) activity after elective abdominal aortic aneurysmectomy. J Of Cardiothorac Vasc Anesth 1991; 5:425–30

116. Seymour DG, Pringle R, Shaw J: The role of the routine pre-operative electrocardiogram in the elderly surgical patient. Age Ageing 1983; 12:97–104

117. Chiolero R, Borgeat A, Fisher A: Postoperative arrhythmias and risk factors after open heart surgery. Thorac Cardiovasc Surg 1991; 39:81–4

118. Christakis GT, Weisel RD, Fremes SE, Ivanov J, David TE, Goldman BS, Salerno TA: Coronary artery bypass grafting in patients with poor ventricular function. J Thorac Cardiovasc Surg 1992; 103:1083–91

119. Keyl C, Tassani P, et al.: Hemodynamic changes due to intraoperative testing of the automatic implantable cardioverter defibrillator: implications for anesthesia management. J Cardiothorac Vasc Anesth 1993; 7:442–7

120. Luosto R, Ketonen P, Mattila S, Takkunen O, Eerola S: Local anaesthesia in carotid surgery. A prospective study of 111 endarterectomies in 100 patients. Scand J Thorac Cardiovasc Surg 1984; 18:133–7

121. Maffei S, Baroni M, Terrazzi M, Paoli F, Ferrazzi P, Biagini A: Preoperative assessment of coronary artery disease in aortic stenosis: a dipyridamole echocardiographic study. Ann Thorac Surg 1998; 65:397–402

122. Pasquet A, Williams MJ, Secknus MA, Zuchowski C, Lytle BW, Marwick TH: Correlation of preoperative myocardial function, perfusion, and metabolism with postoperative function at rest and stress after bypass surgery in severe left ventricular dysfunction. Am J Cardiol 1999; 84:58–64

123. Plotkin JS, Benitez M, Kuo PC, Njoku MJ, Ridge LA, Lim JW, Howell CD, Laurin JM, Johnson LB: Dobutamine stress echocardiography for preoperative cardiac risk stratification in patients undergoing orthotopic liver transplantation. Liver Transpl Surg 1998; 4:253–7

124. Rossi E, Citterio F, Vescio MF, Pennestri F, Lombardo A, Loperfido F, Maseri A: Risk stratification of patients undergoing peripheral vascular revascularization by combined resting and dipyridamole echocardiography. Am J Cardiol 1998; 82:306–10

125. Van Damme H, Pierardt L, Gillain D, Benoits T, Rigos P, Limet R: Cardiac risk assessment before vascular surgery: a prospective study comparing clinical evaluation, dobutamine stress echocardiography, and dobutamine Tc-99m sestamibi tomoscintigraphy. Cardiovasc Surg 1997; 5:54–64

126. Gerson MC, Hurst JM, Hertzberg VS, Baughman R, Rouan GW, Ellis K: Prediction of cardiac and pulmonary complications related to elective abdominal and noncardiac thoracic surgery in geriatric patients. Am J Med 1990; 88:101–7

127. Therre T, Ribal JP, Motreff P, Lusson JR, Espeut JB, Cassagnes J, Glanddier G: Assessment of cardiac risk before aortic reconstruction: noninvasive work-up using clinical examination, exercise testing, and dobutamine stress echocardiography versus routine coronary arteriography. Ann Vasc Surg 1999; 13:501–8

128. Bouillot JL, Fingerhut A, Paquet JC, Hay JM, Coggia M: Are routine preoperative chest radiographs useful in general surgery? A prospective, multicentre study in 3959 patients. Eur J Surg 1996; 162:597–604

129. Farnsworth PB, Steiner E, Klein RM, SanFilippo JA: The value of routine preoperative chest roentgenograms in infants and children. JAMA 1980; 244: 582–3

130. Loder RE: Routine pre-operative chest radiography: 1977 compared with 1955 at Peterborough District General Hospital. Anaesthesia 1978; 33:972–4

131. Mendelson DS, Khilnani N, Wagner LD, Rabinowitz JG: Preoperative chest radiography: value as a baseline examination for comparison. Radiology 1987; 165:341–3

132. Ogunseyinde AO: Routine pre-operative chest radiographs in non-cardiopulmonary surgery. Afr J Med Sci 1988; 17:157–61

133. Pal KMI, Khan IAR, Safdar B: Preoperative work up: are the requirements different in a developing country? J Pak Med Assoc 1998; 48(11):339–41

134. Petterson SR, Janower ML: Is the routine preoperative chest film of value? Applied Radiology 1977; Jan:70

135. Rees AM, Roberts CJ, Bligh AS, Evans KT: Routine preoperative chest radiography in non-cardiopulmonary surgery. BMJ 1976; 1:1333–5

136. Rosselló PJ, Ramos Cruz A, Mayol PM: Routine laboratory tests for elective surgery in pediatric patients: are they necessary? Bol Asoc Med PR 1980; 72:614

137. Rucker L, Frye EB, Stuen MA: Usefulness of screening chest roentgenograms in preoperative patients. JAMA 1983; 250:3209–11

138. Sagel SS, Evens RG, Forrest JV, Bramson RT: Efficacy of routine screening and lateral chest radiographs in a hospital-based population. N Eng J Med 1974; 29:1001–4

139. Sane SM, Worsing RAJ, Wiens CW, Sharma RK: Value of preoperative chest X-ray examinations in children. Pediatrics 1977; 60:669–72

140. Tape TG, Mushlin AI: How useful are routine chest X rays of preoperative patients at risk for postoperative chest disease. J Gen Intern Med 1988; 3:15–20

141. Weincek RC, Weaver DW, Bouwman DL, Sachs RJ: Usefulness of selective preoperative chest x-ray films: a prospective study. Am Surg 1987; 53:396–8

142. Wood RA, Hoekelman RA: Value of the chest X-ray as a screening test for elective surgery in children. Pediatrics 1981; 67:447–52

143. Bhuripanyo K, Prasertchuang C, Chamadol N, Laopaiboon M, Bhuripanyo P: The impact of routine preoperative chest X ray in Srinagarind Hospital, Khon Kaen. J Med Assoc Thai 1990; 73:21–8

144. Boghosian SG, Mooradian AD: Usefulness of routine preoperative chest roentgenograms in elderly patients. J Am Geriatr Soc 1987; 35:142–6

145. Charpak Y, Blery C, Chastang C, Szatan M, Fourgeaux B: Prospective assessment of a protocol for selective ordering of preoperative chest x-rays. Can J Anaesth 1988; 35:259–64

146. Gupta SD, Gibbons FJ, Sen I: Routine chest radiography in the elderly. Age Ageing 1985; 14:11–4

147. Ishaq M, Kamal RS, Aqil M: Value of routine pre-operative chest X-ray in patients over the age of 40 years. J Pak Med Assoc 1997; 47:279–81

148. Sewell JMA, Spooner LLR, Dixon AK, Rubenstein D: Screening investigations in the elderly. Age Ageing 1981; 10:165–8

149. Seymour DG, Pringle R, Shaw J: The role of the routine pre-operative chest X-ray in the elderly general surgical patient. Postgrad Med J 1982; 58:741–5

150. Tornebrandt K, Fletcher R: Pre-operative chest X-rays in elderly patients. Anaesthesia 1982; 37:901–2

151. Umbach GE, Zubek S, Deck HJ, Bulil R, Bender HG, Jungblut RM: The value of preoperative chest X-rays in gynecological patients. Arch Gynecol & Obstet 1988; 243:179–85

152. Weibman MD, Shah NK, Bedford RF: Influence of preoperative chest x-rays on the perioperative management of cancer patients. ANESTHESIOLOGY 1987; 67(3A):A332

153. Barisione G, Rovida S, Gazzaniga GM, Fontana, L: Upper abdominal surgery: does a lung function test exist to predict early severe postoperative respiratory complications? Eur Respir J 1997; 10:1301–8

154. Appleberg M, Gordon I, Fatti LP: Preoperative pulmonary evaluation of surgical patients using the vitalograph. Br J Surg 1974; 61:57–9

155. Kocabas A, Kara K, Ozgur H, Sonmez H, Burgut R: Value of preoperative spirometry to predict postoperative pulmonary complications. Resp Med 1996; 90:25–33

156. Pereira ED: Prospective assessment of the risk of postoperative pulmonary complications in patients submitted to upper abdominal surgery. Sao Paulo Med J 1999; 117(Suppl):151–60

157. Durand M, Combes P, Elsicle JH, Contet A, Blin D, Girardet P: Pulmonary function tests predict outcome after cardiac surgery. Acta Anaesth Belg 1993; 44:17–23

158. Jacob B, Amoateng-Adjepong Y, Rasakulasuriar S, Manthous CA, Haddad R: Preoperative pulmonary function tests do not predict outcome after coronary artery bypass. Conn Med 1997; 61(6):327–32

159. Vedantam R, Crawford AH: The role of preoperative pulmonary function tests in patients with adolescent idiopathic scoliosis undergoing posterior spinal fusion. Spine 1997; 22:2731–4

160. Kispert JF, Kazmers A, Roitman L: Preoperative spirometry predicts perioperative pulmonary complications after major vascular surgery. Am Surg 1992; 58:491–5

161. Hackmann T, Steward DJ, Sheps SB: Anemia in pediatric day-surgery patients: prevalence and detection. ANESTHESIOLOGY 1991; 75:27–31

162. Harris EJ: Usefulness of preoperative testing in pediatric podiatric surgery. Does it influence clinical decisions? Clin Podiatric Med & Surg 1997; 14(1):149–78

163. Jones MW, Harvey IA, Owen R: Do children need routine preoperative blood tests and blood cross matching in orthopaedic practice? Ann Royal Coll Surg Eng 1989; 71:1–3

164. Narr BJ, Hansen TR, Warner MA: Preoperative laboratory screening in health screening in healthy Mayo patients: Cost-effective elimination of tests and unchanged outcomes. Mayo Clin Proc 1991; 66:155–9

165. Roy WL, Lerman J, McIntyre BG: Is preoperative haemoglobin testing justified in children undergoing minor elective surgery? Can J Anaesth 1991; 38(6):700–3

166. Keating EM, Meding JB, Faris PM, Ritter MA: Predictors of transfusion risk in elective knee surgery. Clin Orthop 1998; 357:50–5

167. Swetech SM, Conlon JW, Messana AS: Common features associated with spinal-anesthesia-induced hypotension: a retrospective study. J Am Osteopath Assoc 1991; 91:1195–8, 1201–2, 1205–8

168. Baron MJ, Gunter J, White P: Is the pediatric preoperative hematocrit determination necessary. South Med J 1992; 85:1187–9

169. Gold BD, Wolfersberger WH: Findings from routine urinalysis and hematocrit on ambulatory oral and maxillofacial surgery patients. J Oral Surg 1980; 38:677–8

170. Haug RH, Reifeis RL: A prospective evaluation of the value of preoperative laboratory testing for office anesthesia and sedation. J Oral Maxillfac Surg 1999; 57(1):16–20

171. Kaplan EB, Sheiner LB, Boeckmann AJ, et al.: The usefulness of preoperative laboratory screening. JAMA 1985; 253:3576–81

172. O'Connor ME, Drasner K: Preoperative laboratory testing of children undergoing elective surgery. Anesth Analg 1990; 70:176–80

173. Aghajanian A, Grimes DA: Routine prothrombin time determination before elective gynecologic operations. Obstet Gynecol 1991; 78(5):837–9

174. Bolger, WE, Parsons DS, Potempa L: Preoperative hemostatic assessment of the adenotonsillectomy patient. Otolaryngol Head Neck Surg 1990; 103:396–405

175. Burk CD, Miller L, Handler SD, Cohen AR: Preoperative history and coagulation screening in children undergoing tonsillectomy. Pediatrics 1992; 89(4):691–5

176. Eisenberg JM, Clarke JR, Sussman SA: Prothrombin and partial thromboplastin times as preoperative screening tests. Arch Surg 1982; 117:48–51

177. Eisenberg JM, Goldfarb S: Clinical usefulness of measuring prothrombin time as a routine admission test. Clin Chem 1976; 22:1644–7

178. Erban SB, Kinman JL, Schwartz S: Routine use of the prothrombin and partial thromboplastin times. JAMA 1989; 262:2428–32

179. Houry S, Georgeac C, Hay JM, Fingerhut A, Boudet MJ: A prospective multicenter evaluation of preoperative hemostatic screening tests. Am J Surg 1995; 170:19–23

180. Korte W, Truttmann B, Heim C, Stangl U, Schmid L, Kreienbuhl G: Preoperative values of molecular coagulation markers identify patients at low risk for intraoperative haemostatic disorders and excessive blood loss. Clin Chem Lab Med 1998; 36:235–40

181. Kozak EA, Brath LK: Do "screening" coagulation tests predict bleeding in patients undergoing fiberoptic bronchoscopy with biopsy? Chest 1994; 106: 703–5

182. Robbins JA, Rose SD: Partial thromboplastin time as a screening test. Ann Int Med 1979; 90:796–7

183. Rohrer MJ, Michelotti MC, Nahwold DL: A prospective evaluation of the efficacy of preoperative coagulation testing. Ann Surg 1988; 208:554–7

184. Tami TA, Parker GS, Taylor RE: Post-tonsillectomy bleeding: an evaluation of risk factors. Laryngoscope 1987; 97:1307–11

185. Myers ER, Clarke-Pearson DL, Olt GJ, Soper JT, Berchuck A: Preoperative coagulation testing on a gynecologic oncology service. Obstet Gynecol 1994; 83:438–44

186. Rader ES: Hematologic screening tests in patients with operative prostatic disease. Urology 1978; 9:243–6

187. Wojtkowski TA, Rutledge JC, Matthews DC: The clinical impact of increased sensitivity PT and APTT coagulation assays. Am J Clin Pathol 1999; 112:225–32

188. Kharasch ED, Bowdle TA: Hypokalemia before induction of anesthesia and prevention by beta 2 adrenoceptor antagonism. Anesth Analg 1991; 72: 216–20

189. Hirsch IA, Tomlinson DL, Slogoff S, Keats AS: The overstated risk of preoperative hypokalemia. Anesth Analg 1988; 67:131–6

190. Wahr JA, Parks R, Boisgvert D, Comunale M, Fabian J, Ramsay J, Mangano DT: Preoperative serum potassium levels and perioperative outcomes in cardiac surgery patients. Multicenter Study of Perioperative Ischemia Research Group. JAMA 1999; 281:2203–10

191. Akin BV, Hubbell FA, Frye EB, Rucker L, Friis R: Efficacy of the routine admission urinalysis. Am J Med 1987; 82:719–22

192. Sanders DP, McKinney FW, Harris WH: Clinical evaluation and cost effectiveness of preoperative laboratory assessment on patients undergoing total hip arthroplasty. Orthopedics 1989; 12:1449–53

193. Azzam FJ, Gurpreet SP, DeBoard JW, Krock JL, Kolterman SM: Preoperative pregnancy testing in adolescents. Anesth Analg 1996; 82:4–7

194. Manley S, de Kebala G, Joseph NJ, Salem R, Heyman HJ: Preoperative pregnancy testing in ambulatory surgery. ANESTHESIOLOGY 1995; 83:690–3

195. Pierre N: Evaluation of a pregnancy-testing protocol in adolescents undergoing surgery. J Pediatr Adolesc Gynecol 1998; 11:139–41

196. Twersky RS, Singleton G: Preoperative pregnancy testing: "Justice and testing for all". Anesth Analg 1996; 83:438–9

197. Wheeler M, Cote CJ: Preoperative pregnancy testing in a tertiary care children's hospital: a medico-legal conundrum. J Clin Anesth 1999; 11:56–63

198. Schein OD, Katz J, Bass EB, Tielsch JM, Lubomski LH, Feldman MA, Petty BG, Steinberg EP: The value of routine preoperative medical testing before cataract surgery. NEJM 2000; 342:168–75

Practice Advisory for Preanesthesia Evaluation: Bibliography
American Society of Anesthesiologists

1. Adam DJ, Ludlam CA, Vaughan C, Ruckley ChM, Bradbury AW: Coagulation and fibrinolysis in patients undergoing operation for ruptured and nonruptured infrarenal abdominal aortic aneurysms. J Vasc Surg 30:641-650, 1999
2. Adams JG, Weigelt JA, Poulos E: Usefulness of preoperative laboratory assessment of patients undergoing elective herniorrhaphy. Arch Surg 127:801-805, 1992
3. Aghajanian A, Grimes DA: Routine prothrombin time determination before elective gynecologic operations. Obstet Gynecol 78:837-839, 1991
4. Akin BV, Hubbell FA, Frye EB, Rucker L, Friis R: Efficacy of the routine admission urinalysis. Am J Med 82:719-722, 1987
5. Anonymous: Preoperative chest radiology. National study by the Royal College of Radiologists. Lancet 2:83-86, 1979
6. Appleberg M, Gordon I, Fatti LP: Preoperative pulmonary evaluation of surgical patients using the vitalograph. Br J Surg 61:57-59, 1974
7. Arellano R, Cruise C, Chung F: Timing of the anesthetist's preoperative outpatient interview. Anesth Analg 68:645-648, 1989
8. Azzam FJ, Gurpreet SP, DeBoard JW, Krock JL, Kolterman SM: Preoperative pregnancy testing in adolescents. Anesth Analg 82:4-7, 1996
9. Ballal RS, Kapadia S, Secknus MA, Rubin D, Arheart K, Marwick TH. Prognosis of patients with vascular disease after clinical evaluation and dobutamine stress echocardiography. Am Heart J 137:469-475, 1999
10. Bando K, Sun K, Binford RS, Sharp TG: Determinants of longer duration of endotracheal intubation after adult cardiac operations. Ann Thorac Surg 63:1026-1033, 1997
11. Barisione G, Rovida S, Gazzaniga GM, Fontana, L: Upper abdominal surgery: does a lung function test exist to predict early severe postoperative respiratory complications? Eur Respir J 10:1301-1308, 1997
12. Baron MJ, Gunter J, White P: Is the pediatric preoperative heamatocrit determination necessary. South Med J 85:1187-1189, 1992
13. Baxter MA: Acromegaly and transsphenoidal hypophysectomy: a case report. Aana J 62:182-185, 1994
14. Belani KG, Krivit W, Carpenter BL, Braunlin E, Buckley JJ, Liao JC, Floyd T, Leonard AS, Summers CG: Children with mucopolysaccharidosis: perioperative care, morbidity, mortality, and new findings. J Pediat Surg 28:403-8; 1993
15. Bhuripanyo K, Prasertchuang C, Chamadol N, Laopaiboon M, Bhuripanyo P: The impact of routine preoperative chest X ray in Srinagarind Hospital, Khon Kaen. J Med Assoc Thai 73:21-28, 1990
16. Bhuripanyo K, Prasertchuang C, Viwathanatepa M, Khumsuk K, Sornpanya N: The impact of routine preoperative electrocardiogram in patients age > 40 years in Srinagarind Hospital. J Med Assoc Thai 75:399-406, 1992
17. Biavati M, Manning SC, Phillips DL: Predictive factors for respiratory complications after tonsillectomy and adenoidectomy in children. Arch Otolaryngol Head Neck Surg 123:517-521, 1997
18. Bissonnette B, Sullivan PJ: Pyloric stenosis. Can J Anaesth 38:668-676, 1991
19. Blake DW, McGrath BP, Donnan GB, Smart S, Way D, Myers KA, Fullerton M: Influence of cardiac failure on atrial natriuretic peptide responses in patients undergoing vascular surgery. European J Anaesth 8:365-371, 1991
20. Boghosian SG, Mooradian AD: Usefulness of routine preoperative chest roentgenograms in elderly patients. J Am Geriatr Soc 35:142-146, 1987
21. Bolger, WE, Parsons DS, Potempa L: Preoperative hemostatic assessment of the adenotonsillectomy patient. Otolaryngol Head Neck Surg 103:396-405, 1990
22. Bouillot JL, Fingerhut A, Paquet JC, Hay JM, Coggia M: Are routine preoperative chest radiographs useful in general surgery? A prospective, multicentre study in 3959 patients. Eur J Surg 162:597-604, 1996
23. Boysen PG, Clark CA, Block AJ: Graded exercise testing and postthoracotomy complications. J Cardiothorac Anesth 4:68-72, 1990
24. Brooks-Brunn JA: Predictors of postoperative pulmonary complications following abdominal surgery. Chest 111:564-571, 1997
25. Brummett C, Reves JG, Lell WA, Smith LR: Patient care problems in patients undergoing reoperation for coronary artery grafting surgery. Can Anaesth Soc J 31:213-220, 1984
26. Bruton NH, Maree SM: A case approach: the pathophysiology of thyroid storm. Aana J 51:295-301, 303, 1983
27. Burgos LG, Ebert TJ, Asiddao C, Turner LA, Pattison CZ, Wang Cheng R, Kampine JP: Increased intraoperative cardiovascular morbidity in diabetics with autonomic neuropathy. Anesthesiology 70:591-597, 1989
28. Burk CD, Miller L, Handler SD, Cohen AR: Preoperative history and coagulation screening in children undergoing tonsillectomy. Pediatrics 89:691-695, 1992
29. Burman AL: A pre-anaesthetic clinic. S Afr Med J 42:315-317, 1968
30. Burrows FA, Hickey PR, Colan S: Perioperative complications in patients with anthracycline chemotherapeutic agents. Can Anaesth Soc J 32:149-157, 1985

31. Callaghan LC, Edwards ND, Reilly CS: Utilisation of the pre-operative ECG. Anaesthesia 50:488-490, 1995
32. Calverley RK, Johnston AE: The anaesthetic management of tracheo-oesophageal fistula: a review of ten years' experience. Can Anaesth Soc J 19:270-282, 1972
33. Carliner NH, Fisher ML, Plotnick GD, Garbart H, Rapoport A, Kelemen MH, Moran GW, Gadacz T, Peters RW: Routine preoperative exercise testing in patients undergoing major noncardiac surgery. Am J Cardiol 56:51-58, 1985
34. Carson JM, Van Sickels JE: Preoperative determination of susceptibility to malignant hyperthermia. J Oral Maxillofac Surg 40:432-435, 1982
35. Catchlove BR, Wilson RM, Spring S, Hall J: Routine investigations in elective surgical patients. Their use and cost effectiveness in a teaching hospital. Med J Aust 2:107-110, 1979
36. Chan VW, Tindal S: Anaesthesia for transsphenoidal surgery in a patient with extreme gigantism. Br J Anaesth 60:464-468, 1988
37. Charlson ME, MacKenzie CR, Gold JP, Ales KL, Shires GT: Postoperative renal dysfunction can be predicted. Surgery, Gynecol Obstet 169:303-309, 1989
38. Charpak Y, Blery C, Chastang C, Szatan M, Fourgeaux B: Prospective assessment of a protocol for selective ordering of preoperative chest x-rays. Can J Anaesth 35:259-264, 1988
39. Cherng YG, Chao A, Shih RL, Lin CS, Chan WH, Huang CH, Tsai SK: Preoperative evaluation and postoperative prediction of hemostatic function with thromboelastography in patients undergoing redo cardiac surgery. Acta Anaesthesiol Sin 36:179-186, 1998
40. Chiolero R, Borgeat A, Fisher A: Postoperative arrhythmias and risk factors after open heart surgery. Thorac Cardiovasc Surg 39:81-84, 1991
41. Christakis GT, Weisel RD, Fremes SE, Ivanov J, David TE, Goldman BS, Salerno TA: Coronary artery bypass grafting in patients with poor ventricular function. J Thorac Cardiovasc Surg 103:1083-1091, 1992
42. Chung F, Crago RR: Sleep apnoea syndrome and anaesthesia. Can Anaesth Soc J 29:439-445, 1982
43. Clark SK, Leighton BL, Seltzer JL: A risk-specific anesthesia consent form may hinder the informed consent process. J Clin Anesth 3:11-13, 1991
44. Clarke Pearson DL, DeLong ER, Synan IS, Coleman RE, Creasman WT: Variables associated with postoperative deep venous thrombosis: a prospective study of 411 gynecology patients and creation of a prognostic model. Obstet Gynecol 69:146-150, 1987
45. Close HL, Kryzer TC, Nowlin JH, Alving BM: Hemostatic assessment of patients before tonsillectomy: a prospective study. Otolaryngol Head Neck Surg 111:733-738, 1994
46. Cofrancesco E, Cortellaro M, Corradi A, Ravasi F, Bertocchi F: Coagulation activation markers in the prediction of venous thrombosis after elective hip surgery. Thromb Haemost 77:267-269, 1997
47. Cohen MM, Cameron CB: Should you cancel the operation when a child has an upper respiratory tract infection? Anesth Analg 72:282-288, 1991
48. Cohen MM, Duncan PG: Physical status score and trends in anesthetic complications. J Clin Epidemiol 41:83-90, 1988
49. Cole RR, Cotton RT: Preventing postoperative complications in the adult cystic fibrosis patient. Int J Pediatr Otorhinolaryngol 18:263-269, 1990
50. Coriat P, Harari A, Daloz M, Viars P: Clinical predictors of intraoperative myocardial ischemia in patients with coronary artery disease undergoing non-cardiac surgery. Acta Anaesth Scand 26:287-290, 1982
51. Corradi A, Lazzaro F, Cofrancesco E, Cortellaro M, Ravasi F, Bertocchi F: Preoperative plasma levels of prothrombin fragment 1+2 correlate with the risk of venous thrombosis after elective hip replacement. Acta Orthop Belg 65:39-43, 1999
52. Cullen DJ, Apolone G, Greenfield S, Guadagnoli E, Cleary P: ASA Physical Status and age predict morbidity after three surgical procedures. Ann Surg 220:3-9, 1994
53. D'Angelo AJ, Puppala D, Farber A, Murphy AE, Fause GR, Cohen JR: Is preoperative cardiac evaluation for abdominal aortic aneurysm repair necessary? J Vasc Surg 25:152-156, 1997
54. Despotis GJ, Filow KS, Zoys TN, Hogue CW, Spitznagel E, Lappas DG: Factors associated with excessive postoperative blood loss and hemostatic transfusion requirements: a multivariate analysis in cardiac surgical patients. Anesth Analg 82:13-21, 1996
55. Diamond GA, Forrester JS: Analysis of probability as an aid in the clinical diagnosis of coronary-artery disease. NEJM 300:1350-1358, 1979
56. Diaz JH: Halothane anesthesia in infancy: identification and correlation of preoperative risk factors with intraoperative arterial hypotension and postoperative recovery. J Pediat Surg 20:502-507, 1985
57. Dorman BH, Spinale FG, Bailey MK, Kratz JM, Roy RC: Identification of patients at risk for excessive blood loss during coronary artery bypass surgery: thromboelastography versus coagulation screen. Anesth Analg 76:694-700, 1993
58. Dorrington KL: Asystole with convulsion following a subanesthetic dose of propofol plus fentanyl. Anaesthesia 44:658-659, 1989

59. Dripps RD, Lamont A, Eckenhoff JE: The role of anesthesia in surgical mortality. JAMA 178:261-266, 1961
60. Dudley JC, Brandenburg JA, Hartley LH, Harris S, Lee TH: Last-minute preoperative cardiology consultations: epidemiology and impact. Am Heart J 131:245-249, 1996
61. Duncan PG, Cohen MM, Tweed WA, Biehl D, Pope WD, Merchant RN, DeBoer D: The Canadian four-centre study of anaesthetic outcomes: III. Are anaesthetic complications predictable in day surgical practice? Can J Anaesth 39:440-448, 1992
62. Duncan PG, Cohen MM: Postoperative complications: factors of significance to anaesthetic practice. Can J Anaesth 34:2-8, 1987
63. Durand M, Combes P, Eisele JH, Contet A, Blin D, Girardet P: Pulmonary function tests predict outcome after cardiac surgery. Acta Anaesth Belg 44:17-23, 1993
64. Eikenbary KF: Pyloric stenosis: its anesthetic management and a case study. AANA J 46:517-521, 1978
65. Eisenberg JM, Clarke JR, Sussman SA: Prothrombin and partial thromboplastin times as preoperative screening tests. Arch Surg 117:48-51, 1982
66. Eisenberg JM, Goldfarb S: Clinical usefulness of measuring prothrombin time as a routine admission test. Clin Chem 22:1644-1647, 1976
67. Erban SB, Kinman JL, Schwartz S: Routine use of the prothrombin and partial thromboplastin times. JAMA 262:2428-2432, 1989
68. Ereth MH, Nuttall GA, Klindworth JT, MacVeigh I, Santrach PJ, Orszulak TA, Harmsen WS, Oliver WC, Jr: Does the platelet-activated clotting test (HemoSTATUS) predict blood loss and platelet dysfunction associated with cardiopulmonary bypass? Anesth Analg 85:259-264, 1997
69. Erickson CA, Carballo RE, Freischlag JA, Seabrook GR, Farooq MM, Cambria RA, Towne JB. Using dipyridamole-thallium imaging to reduce cardiac risk in aortic reconstruction. J Surg Res 60:422-428, 1996.
70. Farnsworth PB, Steiner E, Klein RM, SanFilippo JA: The value of routine preoperative chest roentgenograms in infants and children. JAMA 244:582-583, 1980
71. Fiser WP, Friday CD, Read RC: Changes in arterial oxygenation and pulmonary shunt during thoracotomy with endobronchial anesthesia. J Thorac Cardiovasc Surg 83:523-531, 1982
72. Fleisher LA, Eagle KA, Shaffer T, Anderson GF: Perioperative and long-term mortality rates after major vascular surgery: the relationship to preoperative testing in the medicare population. Anesth Analg 89:849-855, 1999
73. Fleisher LA, Rosenbaum SH, Nelson AH, Jain D, Wackers FJT, Zaret BL: Preoperative dipyridamole thallium imaging and ambulatory electrocardiographic monitoring as a predictor of perioperative cardiac events and long-term outcome. Anesthesiology 83:906-917, 1995
74. Fogh J, Wille-Jorgensen P, Brynjolf I, Thorup T, Jorgennsen T, Bording L, Kjaergaare J: The predictive value of preoperative perfusion-ventilation scintigraphy, spirometry, and x-ray of the lungs on postoperative pulmonary complications: a prospective study. Acta Anaesth Scand 31:717-721, 1987
75. Forrest JB, Rehder K, Cahalan MK, Goldsmith CH: Multicenter study of general anesthesia. III. Predictors of severe perioperative adverse outcomes [published erratum appears in Anesthesiology 77:222, 1992] Anesthesiology 76:3-15, 1992
76. Fox M, Courtney S, Wilkinson PA: Mortality and morbidity of prostatectomy. How far does preselection and pre-operative care influence the result? European Urology 20:277-281, 1991
77. Galloway JA, Shuman CR: Profile, specific methods of management, and response of diabetic patients to anesthesia and surgery. Int Anesth Clin 5:437-466, 1967
78. Garibaldi RA, Britt MR, Coleman ML, Reading JC, Pace NL: Risk factors for postoperative pneumonia. Am J Med 70:677-680, 1981
79. Gerson MC, Hurst JM, Hertzberg VS, Baughman R, Rouan GW, Ellis K: Prediction of cardiac and pulmonary complications related to elective abdominal and noncardiac thoracic surgery in geriatric patients. Am J Med 88:101-107, 1990
80. Gold BD, Wolfersberger WH: Findings from routine urinalysis and hematocrit on ambulatory oral and maxillofacial surgery patients. J Oral Surg 38:677-678, 1980
81. Gold BS, Young ML, Kinman JL, Kitz DS, Berlin J, Schwartz JS: The utility of preoperative electrocardiograms in the ambulatory surgical patient. Arch Internal Med 152:301-305, 1992
82. Goldman L, Caldera DL, Southwick FS, Nussbaum SR, Murray B, O'Malley TA, Goroll AH, Caplan CH, Nolan J, Burke DS, Krogstad D, Carabello B, Slater EE: Cardiac risk factors and complications in non-cardiac surgery. Medicine 57:357-370, 1978
83. Golub R, Cantu R, Sorrento JJ, Stein HD: Efficacy of preadmission testing in ambulatory surgical patients. Am J Surgery 163:565-570, 1992
84. Greaves SC, Rutherford JD, Aranki SF, Cohn LH, Couper GS, Adams DH, Rizzo RJ, Collins JJ, Antman EM: Current incidence and determinants of perioperative myocardial infarction in coronary artery surgery. Am Heart J 132:572-578, 1996
85. Gupta SD, Gibbons FJ, Sen I: Routine chest radiography in the elderly. Age Ageing 14:11-14, 1985

86. Hackmann T, Steward DJ, Sheps SB: Anemia in pediatric day-surgery patients: prevalence and detection. Anesthesiology 75:27-31, 1991
87. Hannon VM, Cunningham AJ, Hutchinson M, McNicholas W: Aspiration pneumonia and coma--an unusual presentation of dystrophic myotonia. Can Anaesth Soc J 33:803-806, 1986
88. Harris EJ: Usefulness of preoperative testing in pediatric podiatric surgery. Does it influence clinical decisions? Clin Podiatric Med Surg 14:149-178, 1997
89. Hatcher CRJ, King SB3, Kaplan JA: Surgical management of unstable angina. World J Surg 2:689-697, 1978
90. Haug RH, Reifeis RL: A prospective evaluation of the value of preoperative laboratory testing for office anesthesia and sedation. J Oral Maxillfac Surg 57:16-20, 1999
91. Hirsch IA, Tomlinson DL, Slogoff S, Keats AS: The overstated risk of preoperative hypokalemia. Anesth Analg 67:131-136, 1988
92. Hogue CW, Goodnough LT, Monk TG: Perioperative myocardial ischemic episodes are related to hematocrit level in patients undergoing radical prostatectomy. Transfusion 38:924-931, 1998
93. Horlocker TT, Wedel DJ, Offord KP: Does preoperative antiplatelet therapy increase the risk of hemorrhagic complications associated with regional anesthesia? Anesth Analg 70:631-634, 1990
94. Houry S, Georgeac C, Hay JM, Fingerhut A, Boudet MJ: A prospective multicenter evaluation of preoperative hemostatic screening tests. Am J Surg 170:19-23, 1995
95. Hovagim AR, Vitkum SA, Manacke GR, Reiner R: Arterial oxygen desaturation in adult dental patients receiving conscious sedation. J Oral Maxill ac Surg 47:936-939, 1989
96. Howells RC, Wax MK, Ramadan HH: Value of preoperative prothrombin time/partial thromboplastin time as a predictor of postoperative hemorrhage in pediatric patients undergoing tonsillectomy. Otolaryngol Head Neck Surg 117:628-632, 1997
97. Hubbert CH, Adams JG: Anesthetic management of patients with epidermolysis bullosa. South Med J 70:1375-1377, 1977
98. Ishaq M, Kamal RS, Aqil M: Value of routine pre-operative chest X-ray in patients over the age of 40 years. J Pak Med Assoc 47:279-281, 1997
99. Jacob B, Amoateng-Adjepong Y, Rasakulasuriar S, Manthaus CA, Haddad R: Preoperative pulmonary function tests do not predict outcome after coronary artery bypass. Conn Med 61:327-332, 1997
100. Jastak JT, Peskin RM: Major morbidity or mortality from office anesthetic procedures: a closed-claim analysis of 13 cases. Anesth Prog 38:39-44, 1991
101. Johnson H, Knee-Ioli S, Butler TA, Munoz E, Wise L: Are routine preoperative laboratory screening tests necessary to evaluate ambulatory surgical patients. Surgery 104:639-645, 1988
102. Jones MW, Harvey IA, Owen R: Do children need routine preoperative blood tests and blood cross matching in orthopaedic practice? Ann Royal Coll Surg Eng 71:1-3, 1989
103. Kahn RL, Hargett MJ, Urquhart B, Sharrock NE, Peterson MG: Supraventricular tachyarrhythmias during total joint arthroplasty. Incidence and risk. Clin Orthopaed Rel Res 265-269, 1993
104. Kaplan EB, Sheiner LB, Boeckmann AJ, Roizen MF, Beal SL, Cohen SN, Nicoll CD: The usefulness of preoperative laboratory screening. JAMA 253:3576-3581, 1985
105. Keating EM, Meding JB, Faris PM, Ritter MA: Predictors of transfusion risk in elective knee surgery. Clin Orthop 357:50-59, 1998
106. Kelsey M: Ophthalmic medications, glaucoma, and the surgical patient. J Post-Anesth Nursing 7:312-316, 1992
107. Keyl C, Tassani P, Kemkes B, Markewitz A, Hoffman E, Steinbeck G: Hemodynamic changes due to intraoperative testing of the automatic implantable cardioverter defibrillator: implications for anesthesia management. J Cardiothorac Vasc Anesth 7:442-447, 1993
108. Kharasch ED, Bowdle TA: Hypokalemia before induction of anesthesia and prevention by beta 2 adrenoceptor antagonism. Anesth Analg 72:216-220, 1991
109. Kispert JF, Kazmers A, Roitman L: Preoperative spirometry predicts perioperative pulmonary complications after major vascular surgery. Am Surg 58:491-495, 1992
110. Kitahata LM: Airway difficulties associated with anaesthesia in acromegaly. Three case reports. Br J Anaesth 43:1187-1190, 1971
111. Kleinman B, Czinn E, Shah K, Sobotka PA, Rao TK: The value to the anesthesia-surgical care team of the preoperative cardiac consultation. J Cardiothorac Anesth 3:682-687, 1989
112. Knight AA, Hollenberg M, London MJ, Tubau J, Verrier E, Browner W, Mangano DT: Perioperative myocardial ischemia: importance of the preoperative ischemic pattern. Anesthesiology 68:681-688, 1988
113. Kocabas A, Kara K, Ozgur H, Sonmez H, Burgut R: Value of preoperative spirometry to predict postoperative pulmonary complications. Resp Med 90:25-33, 1996
114. Korte W, Truttmann B, Heim C, Stangl U, Schmid L, Kreienbuhl G: Preoperative values of molecular coagulation markers identify patients at low risk for intraoperative haemostatic disorders and excessive blood loss. Clin Chem Lab Med 36:235-240, 1998

115. Kozak EA, Brath LK: Do "screening" coagulation tests predict bleeding in patients undergoing fiberoptic bronchoscopy with biopsy? Chest 106:703-705, 1994
116. Kraiss LW, Kilberg L, Critch S, Johansen KJ: Short-stay carotid endarterectomy is safe and cost-effective. Am J Surg 169:512-515, 1995
117. Kroenke K, Lawrence VA, Theroux JF, Tuley MR, Hilsenbeck S: Postoperative complications after thoracic and major abdominal surgery in patients with and without obstructive lung disease. Chest 104:1445-1451, 1993
118. Kurki TSO, Kataja M: Preoperative prediction of postoperative morbidity in coronary artery bypass grafting. Ann Thorac Surg 61:1740-1745, 1996
119. Lai CS, Lin SD, Yang CC, Chou CK, Tsai CW: Tracheal deviation: an unusual complication of platysma myocutaneous flap. Kao-Hsiung I Hsueh Ko Hsueh Tsa Chih [Kaohsiung J Med Sciences] 9:118-121, 1993
120. Landesberg G, Einav S, Christopherson R, Beattie C, Berlatzky Y, Rosenfeld B, Eidelman LA, Norris E, Anner H, Mosseri M, Cotev S, Luria MH: Perioperative ischemia and cardiac complications in major vascular surgery: importance of the preoperative twelve-lead electrocardiogram. J Vasc Surg 26:570-578, 1997
121. Latimer RG, Dickman M, Day WC, Gunn ML, Schmidt CD: Ventilatory patterns and pulmonary complications after upper abdominal surgery determined by preoperative and postoperative computerized spirometry and blood gas analysis. Am J Surg 122:622-632, 1971
122. Lavender RC, Salmon JS, Golden WE: Pseudothrombocytopenia in an elderly preoperative patient. Anesth Analg 69:396-397, 1989
123. Lawrence VA, Dhanda R, Hilsenbeck SG, Page CP: Risk of pulmonary complications after elective abdominal surgery. Chest 110:744-750, 1996
124. Leung JM, Hollenberg M, O'Kelly BF, Kao A, Mangano DT: Effects of steal-prone anatomy on intraoperative myocardial ischemia. The SPI Research Group. J Am Coll Cardiol 20:1205-1212, 1992
125. Lewis JWJ, Serwin JP, Gabriel FS, Bastanfar M, Jacobsen G: The utility of a double-lumen tube for one-lung ventilation in a variety of noncardiac thoracic surgical procedures. J Cardiothorac Vasc Anesth 6:705-710, 1992
126. Liu S, Paul GE, Carpenter RL, Stephenson C, Wu R: Prolonged PR interval is a risk factor for bradycardia during spinal anesthesia. Reg Anesth 20:41-44, 1995
127. Loder RE: Routine pre-operative chest radiography: 1977 compared with 1955 at Peterborough District General Hospital. Anaesthesia 33:972-974, 1978
128. Lowe GD, Haverkate F, Thompson SG, Turner RM, Bertina RM, Turpie AG, Mannucci PM: Prediction of deep vein thrombosis after elective hip replacement surgery by preoperative clinical and haemostatic variables: the ECAT DVT Study. European Concerted Action on Thrombosis. Thromb Haemost 81:879-886, 1999
129. Luebke NH, Walker JA: Discussion of sensitivity to preservatives in anesthetics. J Am Dental Assoc 97:656-657, 1978
130. Luosto R, Ketonen P, Mattila S, Takkunen O, Eerola S: Local anaesthesia in carotid surgery. A prospective study of 111 endarterectomies in 100 patients. Scand J Thorac Cardiovasc Surg 18:133-137, 1984
131. Lutner RE, Roizen MF: The automated interview versus the personal interview. Do patient responses to preoperative health questions differ? Anesthesiology 75:394-400, 1991
132. Maffei S, Baroni M, Terrazzi M, Paoli F, Ferrazzi P, Biagini A: Preoperative assessment of coronary artery disease in aortic stenosis: a dipyridamole echocardiographic study. Ann Thorac Surg 65:397-402, 1998
133. Maki DD, Miller WT, Aronchick JM, Gefter WB, Miller WT, Kotloff RM, Tino G: Advanced emphysema: preoperative chest radiographic findings as predictors of outcome following lung volume reduction surgery. Radiology 212:49-55, 1999
134. Malan MD, Crago RR: Anaesthetic considerations in idiopathic orthostatic hypotension and the Shy-Drager syndrome. Can Anaesth Soc J 26:322-327, 1979
135. Manley S, de Kelaita G, Joseph NJ, Salem R, Heyman HJ: Preoperative pregnancy testing in ambulatory surgery. Anesthesiology 83:690-693, 1995
136. Mantia AM, Brinkmeyer SD, D'Amico F, Ingram M, Ammon J, Canose J: An epidemiologic approach to predictors of elective coronary artery bypass mortality in a non-university hospital population. J Cardiothorac Vasc Anesth 8:263-268, 1994
137. Mariette D, Smadja C, Naveau S, Borgonovo G, Vons C, Franco C: Preoperative predictors of blood transfusion in liver resection for tumor. Am J Surg 173:275-279, 1997
138. McClelland J, Furman EB: Anaesthetic management of pancreaticoduodenectomy in an infant. South Afr Med J 47:1880-1882, 1973
139. McCully RB, Nishimura RA, Bailey KR, Schaff H, Danielson GK, Tajik AJ: Hypertrophic obstructive cardiomyopathy: preoperative echocardiographic predictors of outcome after septal myectomy. J Am Coll Cardiol 27:1491-1496, 1996
140. McKee RF, Scott EM: The value of routine preoperative investigations. Ann Royal Col Surg Eng 69:160-162, 1987
141. Mendelson DS, Khilnani N, Wagner LD, Rabinowitz JG: Preoperative chest radiography: value as a baseline examination for comparison. Radiology 165:341-343, 1987

142. Meneghini L: The usefulness of routine preoperative laboratory tests for one-day surgery in healthy children. Paediatr Anaesth 8:11-15, 1998
143. Merrick HW, Martin JT, Woldenberg LS, Driscoll PL: Massive intraoperative atelectasis secondary to untreated mediastinal Hodgkin's disease: report of the hazard and review of the literature. J Surg Oncol 41:60-64, 1989
144. Messieh M: Preoperative risk factors associated with symptomatic pulmonary embolism after total knee arthroplasty. Orthopedics 22:1147-1149, 1999
145. Michelson JD, Lotke PA, Steinberg ME: Urinary-bladder management after total joint-replacement surgery. N Eng J Med 319:321-326, 1988
146. Mikawa K, Maekawa N, Goto R, Yaku H, Nishina K, Obara H: Use of prostaglandin E1 to treat peri-anaesthetic pulmonary hypertension associated with mitral valve disease. J Int Med Res 21:161-164, 1993
147. Milledge JS, Nunn JF: Criteria of fitness for anaesthesia in patients with chronic obstructive lung disease. BMJ 3:670-673, 1975
148. Monreal M, Lafoz E, Llamazares J, Roncales J, Roca J, Granero X: Preoperative platelet count and postoperative blood loss in patients undergoing hip surgery: an inverse correlation. Haemostasis 26:164-169, 1996
149. Moorman RM, Reynolds DS, Comunale ME: Management of cardiopulmonary bypass in a patient with congenital factor XII deficiency. J Cardiothorac Vasc Anesth 7:452-454, 1993
150. Mudge BJ, Taylor PB, Vanderspek AF: Perioperative hazards in myotonic dystrophy. Anaesthesia 35:492-495, 1980
151. Murdoch CJ, Murdoch DR, McIntyre P, Hoste H, Clark C: The pre-operative ECG in day surgery: a habit? Anaesthesia 54:907-908, 1999
152. Muskett AD, McGreevy JM: Rational preoperative evaluation. Postgrad Med J 62:925-928, 1986
153. Myers ER, Clarke-Pearson DL, Olt GJ, Soper JT, Berchuck A: Preoperative coagulation testing on a gynecologic oncology service. Obstet Gynecol 83:438-444, 1994
154. Naef RW3, Chauhan SP, Chevalier SP, Roberts WE, Meydrech EF, Morrison JC: Prediction of hemorrhage at cesarean delivery. Obstet Gynecol 83:923-926, 1994
155. Narr BJ, Hansen TR, Warner MA: Preoperative laboratory screening in health screening in healthy Mayo patients: Cost-effective elimination of tests and unchanged outcomes. Mayo Clin Proc 66:155-159, 1991
156. Neuman GG, Baldwin CC, Petrini AJ, Wise L, Wollman SB: Perioperative management of a 430-kilogram (946-pound) patient with Pickwickian syndrome. Anesth Analg 65:985-987, 1986
157. Nomoto Y: Preoperative pulmonary blood flow and one-lung anaesthesia. Can J Anaesth 34:447-449, 1987
158. Nugent AM, Riley M, Megarry J, O'Reilly MJG, McMahon J, Lowry R: Cardiopulmonary exercise testing in the preoperative assessment of patients for repair of abdominal aortic aneurysm. Irish J Med Sci 167:238-241, 1998
159. Nuttall GA, Oliver WC, Ereth MH, Santrach PJ: Coagulation tests predict bleeding after cardiopulmonary bypass. J Cardiothorac Vasc Anesth 11:815-823, 1997
160. O'Connor ME, Drasner K: Preoperative laboratory testing of children undergoing elective surgery. Anesth Analg 70:176-180, 1990
161. Ogunseyinde AO: Routine pre-operative chest radiographs in non-cardiopulmonary surgery. Afr J Med Sci 17:157-161, 1988
162. Older P, Smith R, Courtney P, Hone R: Preoperative evaluation of cardiac failure and ischemia in elderly patients by cardiopulmonary exercise testing. Chest 104:701-704, 1993
163. Older P, Smith R, Courtney P, Hone R: Cardiopulmonary exercise testing as a screening test for perioperative management of major surgery in the elderly. Chest 116:355-362, 1999
164. Olsson GL: Bronchospasm during anaesthesia. A computer-aided incidence study of 136,929 patients. Acta Anaesth Scand 31:244-252, 1987
165. Ombrellaro MP, Freeman MB, Stevens SL: Effect of anesthetic technique on cardiac morbidity following carotid artery surgery. Am J Surg 171:387-390, 1996
166. Pal KMI, Khan IAR, Safdar B: Preoperative work up: are the requirements different in a developing country? J Pak Med Assoc 48:339-341, 1998
167. Pasquet A, Williams MJ, Secknus MA, Zuchowski C, Lytle BW, Marwick TH: Correlation of preoperative myocardial function, perfusion, and metabolism with postoperative function at rest and stress after bypass surgery in severe left ventricular dysfunction. Am J Cardiol 84:58-64, 1999
168. Pate P, Tenholder MF, Griffin JP, Esatridge CE, Weiman DS: Preoperative assessment of the high-risk patient for lung resection. Ann Thorac Surg 61:1494-1500, 1996
169. Patel RI, Hannallah RS: Preoperative screening for pediatric ambulatory surgery: evaluation of a telephone questionnaire method. Anesth Analg 75:258-261, 1992
170. Paul SD, Eagle KA, Kuntz KM, Young JR, Hertzer NR: Concordance of preoperative clinical risk with angiographic severity of coronary artery disease in patients undergoing vascular surgery. Circulation 94:1561-1566, 1996
171. Pedersen T, Eliasen K, Henriksen E: A prospective study of risk factors in cardiopulmonary complications associated with anaesthesia and surgery: risk indicators of cardiopulmonary morbidity. Acta Anesth Scand 34:144-155, 1990

172. Pedersen T, Kelbaek H, Munck O: Cardiopulmonary complications in high-risk surgical patients: the value of preoperative radionuclide cardiography. Acta Anaesth Scand 34:183-189, 1990
173. Pedersen T, Viby Mogensen J, Ringsted C: Anaesthetic practice and postoperative pulmonary complications. Acta Anaesth Scand 36:812-818, 1992
174. Pereira ED: Prospective assessment of the risk of postoperative pulmonary complications in patients submitted to upper abdominal surgery. Sao Paulo Med J 117(Suppl):151-160, 1999
175. Perez A, Planell J, Bacardaz C, Hounie A, Franci J, Brotons C, Congost L, Bolibar I: Value of routine preoperative tests: a multicentre study in four general hospitals. Br J Anaesth 74:250-256, 1995
176. Petterson SR, Janower ML: Is the routine preoperative chest film of value? Applied Radiology Jan:70, 1977
177. Phillips EH, Carroll BJ, Fallas MJ, Pearlstein AR: Comparison of laproscopic cholecystectomy in obese and non-obese patients. Am Surg 60:316-321, 1994
178. Pierre N: Evaluation of a pregnancy-testing protocol in adolescents undergoing surgery. J Pediatr Adolesc Gynecol 11:139-141, 1998
179. Pietak S, Weenig CS, Hickey R, Fairley HB: Anesthetic effects on ventilation in patients with chronic obstructive pulmonary disease. Anesthesiology 42:160-166, 1975
180. Plaugher ME: Emergent exploratory laparotomy for a patient with recent Guillain-Barr'e recurrence: a case report. AANA J 62:437-440, 1994
181. Plotkin JS, Benitez M, Kuo PC, Njoku MJ, Ridge LA, Lim JW, Howell CD, Laurin JM, Johnson LB: Dobutamine stress echocardiography for preoperative cardiac risk stratification in patients undergoing orthotopic liver transplantation. Liver Transpl Surg 4:253-257, 1998
182. Poe RH, Kallay MC, Dass T, Celebic A: Can postoperative pulmonary complications after elective cholecystectomy be predicted? Am J Med Sci 295:29-34, 1988
183. Poldermans D, Arnese M, Fioretti PM, Salustri A, Boersma E, Thomson IR, Roelandt JR, van Urk H. Improved cardiac risk stratification in major vascular surgery with dobutamine-atropine stress echocardiography. J Am Coll Cardiol 26:648-653, 1995
184. Prause G, Ratzenhofer-Komenda B, Smolle-Juettner F, Krenn H, Pojer H, Toller W, Voit H, Offner A, Smolle J. Operations on patients deemed "unfit for operation and anaesthesia": what are the consequences? Acta Anaesth Scand 42:316-322, 1998
185. Putnam LP: Pseudocholinesterase deficiency: an additional preoperative consideration in outpatient diagnostic procedures. South Med J 70:831-832, 1977
186. Rabkin SW, Horne JM: Preoperative electrocardiography: Effect of new abnormalities on clinical decisions. Can Med Assoc J 128:146-147, 1983
187. Rabkin SW, Horne JM: Preoperative electrocardiography: its cost-effectiveness in detecting abnormalities when a previous tracing exists. Can Med Assoc J 121:301-305, 1979
188. Raby KE, Goldman L, Creager MA, Cook EF, Weisberg MC, Whittemore AAD, Selwyn AP: Correlation between preoperative ischemia and major cardiac events after peripheral vascular surgery. NEJM 321:1296-1300, 1989
189. Rader ES: Hematologic screening tests in patients with operative prostatic disease. Urology 9:243-246, 1978
190. Rao MK, Reilley TE, Schuller DE, Young DC: Analysis of risk factors for postoperative pulmonary complications in head and neck surgery. Laryngoscope 102:45-47, 1992
191. Ravin M, Newmark Z, Saviello G: Myotonia dystrophica--an anesthetic hazard: two case reports. Anesth Analg 54:216-218, 1975
192. Rees AM, Roberts CJ, Bligh AS, Evans KT: Routine preoperative chest radiography in non-cardiopulmonary surgery. Br Med J 1:1333-1335, 1976
193. Rettke SR, Shub C, Naessens JM, Marsh HM, O'Brien JF: Significance of mildly elevated creatine kinase (myocardial band) activity after elective abdominal aortic aneurysmectomy. J Cardiothorac Vasc Anesth 5:425-430, 1991
194. Richter Larsen K, Svendsen UG, Milman N, Brenoe J, Petersen BN: Exercise testing in the preoperative evaluation of patients with bronchogenic carcinoma. Eur Respir J 10:1559-1565, 1997
195. Robbins JA, Rose SD: Partial thromboplastin time as a screening test. Ann Int Med 90:796-797, 1979
196. Roberts CJ, Fowkes FGR, Ennis WP, Mitchell M: Possible impact of audit on chest x-ray requests from surgical wards. Lancet 2:446-447, 1983
197. Rockoff AS, Christy D, Zeldis N, Tsai DJ, Kramer RA: Myocardial necrosis following general anesthesia in hemoglobin SC disease. Pediatrics 61:73-76, 1978
198. Rodriguez R, Herrin TJ, Hendrickson M: Cardiac and thoracic vascular injuries: anesthetic considerations. South Med J 73:739-741, 1980
199. Rohrer MJ, Michelotti MC, Nahwold DL: A prospective evaluation of the efficacy of preoperative coagulation testing. Ann Surg 208:554-557, 1988
200. Rosenblatt MA, Bradford C, Miller R, Zahl K: A preoperative interview by an anesthesiologist does not lower preoperative anxiety in outpatients. Anesthesiology 71:A926, 1989

201. Rosselló PJ, Ramos Cruz A, Mayol PM: Routine laboratory tests for elective surgery in pediatric patients: are they necessary? Bol Asoc Med PR 72:614, 1980
202. Rossi E, Citterio F, Vescio MF, Pennestri F, Lombardo A, Loperfido F, Maseri A: Risk stratification of patients undergoing peripheral vascular revascularization by combined resting and dipyridamole echocardiography. Am J Cardiol 82:306-310, 1998
203. Roux A, Lourens L, Richards E: Contribution of preoperative investigations to the anaesthetic management of adult trauma patients. Injury 24:17-20, 1993
204. Roy WL, Lerman J, McIntyre BG: Is preoperative haemoglobin testing justified in children undergoing minor elective surgery? Can J Anaesth 38:700-703, 1991
205. Royster RL, Butterworth JF 4th, Prough DS, Johnston WE, Thomas JL, Hogan PE, Case LD, Gravlee GP: Preoperative and intraoperative predictors of inotropic support and long-term outcome in patients having coronary artery bypass grafting. Anesth Analg 72:729-736, 1991
206. Rucker L, Frye EB, Staen MA: Usefulness of screening chest roentgenograms in preoperative patients. JAMA 250:3209-3211, 1983
207. Sagel SS, Evens RG, Forrest JV, Bramson RT: Efficacy of routine screening and lateral chest radiographs in a hospital-based population. N Eng J Med 29:1001-1004, 1974
208. Samaan NA, Hickey RC, Shutts PE: Diagnosis, localization, and management of pheochromocytoma. Pitfalls and follow-up in 41 patients. Cancer 62:2451-2460, 1988
209. Sanders DP, McKinney FW, Harris WH: Clinical evaluation and cost effectiveness of preoperative laboratory assessment on patients undergoing total hip arthroplasty. Orthopedics 12:1449-1453, 1989
210. Sandler G: Costs of unnecessary tests. BMJ 2:21-24, 1979
211. Sane SM, Worsing RAJ, Wiens CW, Sharma RK: Value of preoperative chest X-ray examinations in children. Pediatrics 60:669-672, 1977
212. Schein OD, Katz J, Bass EB, Tielsch JM, Lubomski LH, Feldman MA, Petty BG, Steinberg EP: The value of routine preoperative medical testing before cataract surgery. NEJM 342:168-175, 2000
213. Schweizer P, Warth H, Leriche C: Studies to be conducted before projected operations from the pediatric surgeon's point of view. Eur J Pediatr Surg 1:135-138, 1991
214. Sewell JMA, Spooner LLR, Dixon AK, Rubenstein D: Screening investigations in the elderly. Age Ageing 10:165-168, 1981
215. Seymour DG, Pringle R, Shaw J: The role of the routine pre-operative chest X-ray in the elderly general surgical patient. Postgrad Med J 58:741-745, 1982
216. Seymour DG, Pringle R, Shaw J: The role of the routine pre-operative electrocardiogram in the elderly surgical patient. Age Ageing 12:97-104, 1983
217. Shah KB, Kleinman BS, Rao TL, Jacobs HK, Mestan K, Schaafsma M: Angina and other risk factors in patients with cardiac diseases undergoing noncardiac operations. Anesth Analg 70:240-247, 1990
218. Shoemaker WC, Appel PL, Kram HB: Role of oxygen debt in the development of organ failure sepsis, and death in high-risk surgical patients. Chest 102:208-215, 1992
219. Skolnick ET, Vomvolakis MA, Buck KA, Mannino SF, Sun LS: Exposure to environmental tobacco smoke and the risk of adverse respiratory events in children receiving general anesthesia. Anesthesiology 88:1144-1153, 1998
220. Smith CE, Higgins TL, Kraenzler EJ, Starr NJ, Coyle JP, Licina MG, Blum J: Alpha-adrenergic agonist drugs, left ventricular function, and emergency from cardiopulmonary bypass. J Cardiothorac Anesth 4:681-686, 1990
221. Smith H, Nathan H, Harrison M: Failure to predict intraoperative myocardial ischaemia in patients with coronary artery disease. Can J Anaesth 36:539-544, 1989
222. Sommerville TE, Murray WB: Information yield from routine preoperative chest radiography and electrocardiography. S Afr Med J 81:190-196, 1992
223. Spivack SD, Shinozaki T, Albertini JJ, Deane R: Preoperative prediction of postoperative respiratory outcome. Coronary artery bypass grafting. Chest 109:1222-1230, 1996
224. Steen PA, Tinker JH, Tarhan S: Myocardial reinfarction after anesthesia and surgery. JAMA 239:2566-2570, 1978
225. Stock PG, Estrin JA, Fryd DS, Payne WD, Belani KG, Elick BA, Najarian JS, Ascher NL: Factors influencing early survival after liver transplantation. Am J Surg 157:215-219, 1989
226. Suwanchinda V, Tengapiruk Y, Udomphunthurak S: Hypertension perioperative splenectomy in thalassemic children. J Med Assoc Thai 77:66-70, 1994
227. Svensson LG, Hess KR, Coselli JS, Safi HJ, Crawford S: A prospective study of respiratory failure after high-risk surgery on the thoracoabdominal aorta. J Vasc Surg 14:271-282, 1991
228. Swetech SM, Conlon JW, Messana AS: Common features associated with spinal-anesthesia-induced hypotension: a retrospective study. J Am Osteopath Assoc 91:1195-1208, 1991
229. Szekely LA, Oelberg DA, Wright C, Johnson DC, Wain J, Trotman-Dickerson B, Shepard JA, Kanarek DJ, Systrom D, Ginns LC: Preoperative predictors of operative morbidity and mortality in COPD patients undergoing bilateral lung volume reduction surgery. Chest 111:550-558, 1997

230. Tait AR, Knight PR: The effects of general anesthesia on upper respiratory tract infections in children. Anesthesiology 67:930-935, 1987
231. Tait AR, Parr HG, Tremper KK: Evaluation of the efficacy of routine preoperative electrocardiograms. J Cardiothorac Vasc Anesth 11:752-755, 1997
232. Tami TA, Parker GS, Taylor RE: Post-tonsillectomy bleeding: an evaluation of risk factors. Laryngoscope 97:1307-1311, 1987
233. Tape TG, Mushlin AI: How useful are routine chest X rays of preoperative patients at risk for postoperative chest disease. J Gen Intern Med 3:15-20, 1988
234. Therre T, Ribal JP, Motreff P, Lusson JR, Espeut JB, Cassagnes J, Glanddier G: Assessment of cardiac risk before aortic reconstruction: noninvasive work-up using clinical examination, exercise testing, and dobutamine stress echocardiography versus routine coronary arteriography. Ann Vasc Surg 13:501-508, 1999
235. Thomas GI, Edmark KW, Jones TW, Stavney LS: Peripheral cannulation and bypass under local anesthesia in high-risk cardiac patients. Am Surg 38:486-493, 1972
236. Tobias JD, Lowe S, Holcomb GW 3rd: Anesthetic considerations of an infant with Beckwith-Wiedemann syndrome. J Clin Anesth 4:484-486, 1992
237. Tornebrandt K, Fletcher R: Pre-operative chest X-rays in elderly patients. Anaesthesia 37:901-902, 1982
238. Tseuda K, Debrand M, Bivins BA, Wright BD, Griffen WO: Pulmonary complications in the morbidly obese following jejunoileal bypass surgery under narcotic anesthesia. Int Surg 65:123-129, 1980
239. Turnbull JM, Buck C: The value of preoperative screening investigations in otherwise healthy individuals. Arch Int Med 147:1101-1105, 1987
240. Twersky RS, Singleton G: Preoperative pregnancy testing: "Justice and testing for all." Anesth Analg 83:438-439, 1996
241. Umbach GE, Zubek S, Deck HJ, Buhl R, Bender HG, Jungblut RM: The value of preoperative chest X-rays in gynecological patients. Arch Gynecol Obstet 243:179-185, 1988
242. Van Damme H, Pierardt L, Gillain D, Benoits T, Rigos P, Limet R: Cardiac risk assessment before vascular surgery: a prospective study comparing clinical evaluation, dobutamine stress echocardiography, and dobutamine Tc-99m sestamibi tomoscintigraphy. Cardiovasc Surg 5:54-64, 1997
243. Vanzetto G, Machecourt J, Blendea D, Fagret D, Borrel E, Magne JL, Gattaz F, Guidicelli H: Additive value of thallium single-photon emission computed tomography myocardial imaging for prediction of perioperative events in clinically selected high cardiac risk patients having abdominal aortic surgery. Am J Cardiol 77:143-148, 1996
244. Vedantam R, Crawford AH: The role of preoperative pulmonary function tests in patients with adolescent idiopathic scoliosis undergoing posterior spinal fusion. Spine 22:2731-2734, 1997
245. Velanovich V: Preoperative screening electrocardiography: predictive value for postoperative cardiac complications. Southern Med J 87:431-434, 1994
246. Velanovich V: The value of routine preoperative laboratory testing in predicting postoperative complications: a multivariate analysis. Surgery 109:236-243, 1991
247. Vitez TS, Soper LE, Wong KC, Soper P: Chronic hypokalemia and intraoperative dysrhythmias. Anesthesiology 63:130-133, 1985
248. Vodinh J, Bonnet F, Touboul C, Lefloch JP, Becquemin JP, Harf A: Risk factors of postoperative pulmonary complications after vascular surgery. Surgery 105:360-365, 1989
249. von Knorring J: Postoperative myocardial infarction: a prospective study in a risk group of surgical patients. Surgery 90:55-60, 1981
250. Waga S, Shimosaka S, Sakakura M: Intracerebral hemorrhage remote from the site of the initial neurosurgical procedure. Neurosurgery 13:662-665, 1983
251. Wahr JA, Parks R, Boisgvert D, Comunale M, Fabian J, Ramsay J, Mangano DT: Preoperative serum potassium levels and perioperative outcomes in cardiac surgery patients. Multicenter Study of Perioperative Ischemia Research Group. JAMA 281:2203-2210, 1999
252. Walton HJ, Cross P, Pollak EW: Ventricular cardiac arrhythmias during anesthesia: feasibility of preoperative recognition. South Med J 75:27-9, 32, 1982
253. Warner DO, Warner MA, Offord KP, Schroeder DR, Maxson P, Scanlon PD: Airway obstruction and perioperative complications in smokers undergoing abdominal surgery. Anesthesiology 90:372-379, 1999
254. Warner MA, Offerd KP, Warner ME, Lennon RL, Conover MA, Jansson-Schumacher U: Role of preoperative cessation of smoking and other factors in postoperative pulmonary complications: a blinded prospective study of coronary artery bypass patients. Mayo Clin Proc 64:609-616, 1989
255. Watanabe T, Harumi K, Michihata T, Okazaki O, Yamanaka H, Akutsu Y, Katagiri T: Exercise-induced ST-segment changes permit prediction of improvement in left ventricular ischemic dysfunction after revascularization: evaluation with positron emission tomographic measurements of regional myocardial blood flow and cardiac output. J Nucl Cardiol 5:256-264, 1998
256. Wehner RJ, McKennett RJ: A case study: management of the patient with laryngeal tumor and airway compromise. Aana J 50:81-83, 1982

257. Weibman MD, Shah NK, Bedford RF: Influence of preoperative chest x-rays on the perioperative management of cancer patients. Anesthesiology 67:A332, 1987
258. Weincek RC, Weaver DW, Bouwman DL, Sachs RJ: Usefulness of selective preoperative chest x-ray films: a prospective study. Am Surg 53:396-398, 1987
259. Welborn LG, Hannallah RS, Luban NI, Fink R, Ruttimann RE. Anemia and postoperative apnea in former preterm infants. Anesthesiology 74:1003-1006, 1991
260. Wheeler M, Cote CJ: Preoperative pregnancy testing in a tertiary care children's hospital: a medico-legal conundrum. J Clin Anesth 11:56-63, 1999
261. Wightman JA: A prospective survey of the incidence of postoperative pulmonary complications. Br J Surg 55:85-91, 1968
262. Williams GD, Bratton SL, Riley EC, Ramamoorthy C: Coagulation tests during cardiopulmonary bypass correlate with blood loss in children undergoing cardiac surgery. J Cardiothorac Vasc Anesth 13:398-404, 1999
263. Wittmann FW, Ring PA: Anaesthesia for hip replacement in ankylosing spondylitis. J Royal Soc Med 79:457-459, 1986
264. Wojtkowski TA, Rutledge JC, Matthews DC: The clinical impact of increased sensitivity PT and APTT coagulation assays. Am J Clin Pathol 112:225-232, 1999
265. Wong DH, Weber EC, Schell MJ, Wong AB, Anderson CT, Barker SJ: Factors associated with postoperative pulmonary complications in patients with severe chronic obstructive pulmonary disease. Anesth Analg 80:276-284, 1995
266. Wood RA, Hoekelman RA: Value of the chest X-ray as a screening test for elective surgery in children. Pediatrics 67:447-452, 1981
267. Woodward MN, Earnshaw JJ, Heather BP: The value of QTc dispersion in assessment of cardiac risk in elective aortic aneurysm surgery. Eur J Vasc Endovasc Surg 15:267-269, 1998
268. Wyatt WJ, Reed DN, Apelgren KN: Pitfalls in the role of standardized preadmission laboratory testing for ambulatory surgery. Am Surg 55:343-346, 1989
269. Yagiela JA: Preoperative assessment of patients for conscious sedation and general anesthesia. Anesth Prog 33:178-181, 1986
270. Zaroff J, Aronson S, Lee BK, Feinstein SB, Walker R, Wiencek JG: The relationship between immediate outcome after cardiac surgery, homogeneous cardioplegia delivery, and ejection fraction. Chest 106:38-45, 1994
271. Zwack GC: The utility of preoperative hemostatic assessment in adenotonsillectomy. Int J Pediatr Otorhinolaryngol 39:67-76, 1997